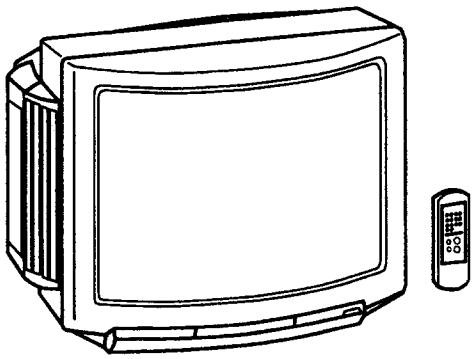
KV-A3413E
RM-816

SERVICE MANUAL

Spanish Model

Chassis No. SCC-D99B-A



DE-2 CHASSIS

MODELS OF THE SAME SERIES	
KV-A3413E	
KV-D3433E	

Specifications

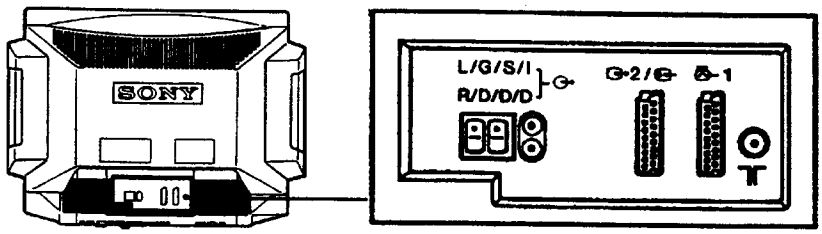
		KV-A3413E	
Television/colour system		PAL I, SECAM (Video-in), NTSC 3.58/4.43 (Video-in)	
Channel coverage		PAL B/G E2-E69 CABLE-TV (1) S1-S41 (2) S01-S05, M1-M10, U1-U10	
Picture tube		BLACK TRINITRON	
		approx. 86 cm (34 inches) (approx. 80 cm picture measured diagonally) 110° deflection	
Terminals	REAR	21-pin Euro connector (CENELEC standard)	-inputs for audio and video signals -inputs for RGB -outputs of TV video and audio signals
		2/ 21-pin EURO connector	-inputs for audio and video signals -inputs for S-video -outputs for audio and video signals (selectable)
		Audio output (variable)	-phono jacks
		External speaker terminals: 21-pin DIN	
	FRONT	Video input - phono jack	
		Audio inputs (L, R) - phono jacks	
		S-Video input - 4-pin DIN	
		Headphone jack: stereo minijack	
Sound output		30W + 30W (music power with 4Ω speakers)	
Power Consumption		149 Wh	
Dimensions (W x H x D)		approx. 880 x 664 x 580 mm	
Weight		approx. 78 kg	
Supplied accessories		RM-816 Remote Commander (1), IEC designation R6 batterries (2)	
Other features		Digital comb filter, NICAM	

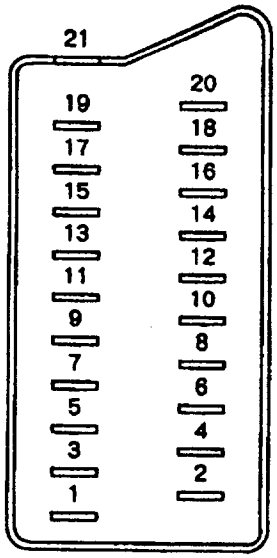
MICROFILM

TRINITRON® COLOR TV

SONY®

21 pin connector (1, 2)





Pin No	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance:less than 1kohm*
2	○	○	Audio input B (right)	Standard level:0.5Vrms Input impedance:More than 10kohms*
3	○	○	Audio output A (left)	Standard level:0.5Vrms Output impedance:less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level:0.5Vrms Input impedance:More than 10kohms*
7	○	●	Blue input	0.7V±3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5—12V):Part mode Low state (0—2V):TV mode Input impedance:More than 10kohms Input capacitance:Less than 2nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal:0.7V±3dB. 75ohms, positive
12	○	○	Open	
13	○	○	Ground(red)	
14	○	○	Ground (blanking)	
15	○	—	Red input	0.7V±3dB, 75ohms, positive
	—	○	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance:75ohmes
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V±3dB, 75ohms, positive Sync:0.3V(–3, +10dB)
20	○	—	Video input	1V±3dB, 75ohms, positive Sync:0.3V(–3, +10dB)
	—	○	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync:0.3V(–3, +10dB)
21	○	○	Common ground (plug, sheld)	

○ connected ● unconnected (open) * At 20 Hz—20kHz

4 pin connector ( )

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V±3dB 75ohm, positive Sync $0.3V^{-3}_{+10}$ dB
4	C (S signal) input	0.3V±3dB 75ohm positive

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SAFETY-RELATED COMPONENT WARNING!!

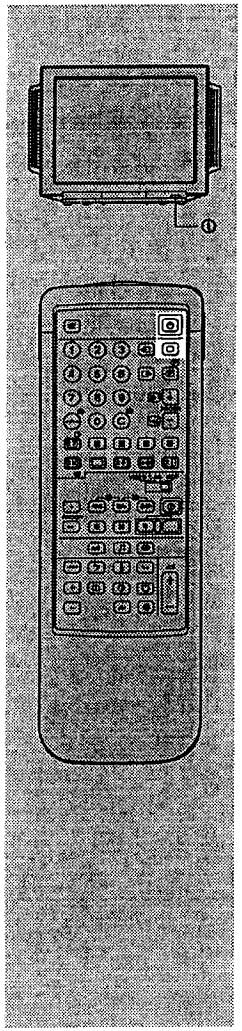
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SECTION 1
GENERAL

1-1. SWITCHING ON/OFF



After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240 V AC, 50 Hz).

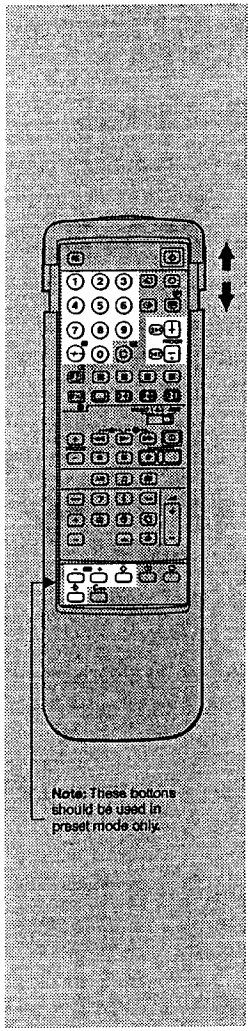
How to turn the TV on

Action	Result
1 Press ⏻ on the TV	The TV will turn on. **Note:** If the screen remains blank, the TV may be in the standby mode. Press ▢ to switch it on.

How to turn the TV off

A Temporarily	
Press ⏻ to enter standby mode.	The TV will be in standby. To return to the TV mode press ▢.
B Completely	
Press ⏻ on the TV.	The TV will turn off.

1-2. PRESETTING



After you have installed this TV you need to preset TV channels.

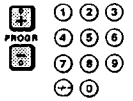
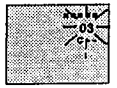
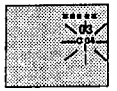
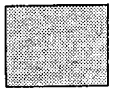
TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on this TV before you can watch the TV programmes.

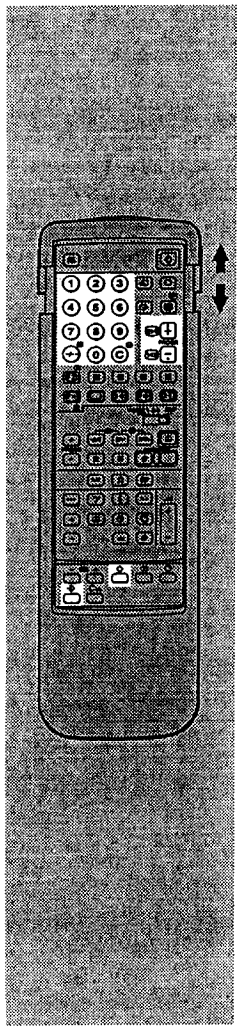
There are 60 spaces for storing these channels.

Slide open the full function side of the remote commander to reveal preset buttons.

If you are unfamiliar with the cannel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset TV channels directly".

How to preset channels automatically

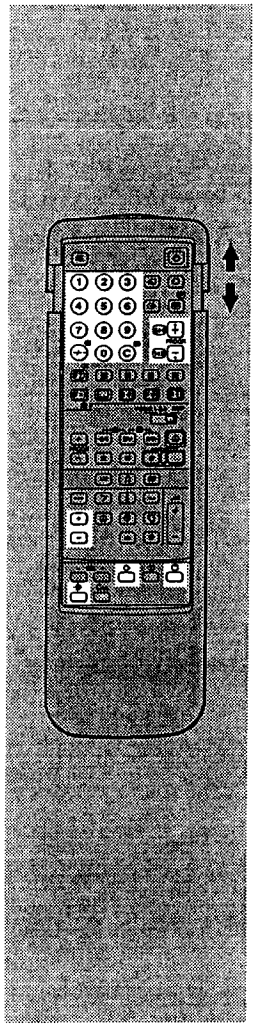
Action	Result
1 Press → to enter the preset mode.	The programme number will start flashing.
2 Press PROGR + or – or the number buttons to select the programme number to which you want to preset channels.  **Note:** To select a double-digit number, use the –/-- button. For example, if you want to choose 23, press –/--, 2, and then 3.	 The programme number changes.
3 Press ⊞+ or – once to search forward or backward for channels.	 When a channel is tuned in, the search will stop. **Note:** If you want to skip a channel, press ⊞+ or ⊞–.
4 Press ◇ if you want to store the channel which is tuned in. Press → to exit preset mode without storing.	 The channel is now stored and you have returned to TV mode.
5 Repeat steps 1 to 4 to store the other channels.	



How to preset channels directly

Action	Result
1 Press → to enter the preset mode.	The programme number will start flashing.
2 Press PROGR +/- or the number buttons to select the programme number on which you want to preset a channel. **Note:** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The programme number changes.
3 Press C.	The indication "C--" starts flashing on the display.
4 Select the channel number with two digits (e.g. 04) by pressing the number buttons. **Note:** Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	The channel number changes. **Note:** If you have made a mistake the letter "X" will apear. Repeat step 4 again.
5 Press ◇ to store the channel which is tuned in. Press → to exit the preset mode without storing.	The channel is now stored and you have returned to TV mode.

Repeat steps 1 to 5 to store the other cannels.



How to Name a Station

You can use up to five characters to "name" a channel or station (i.e. BBC 1).

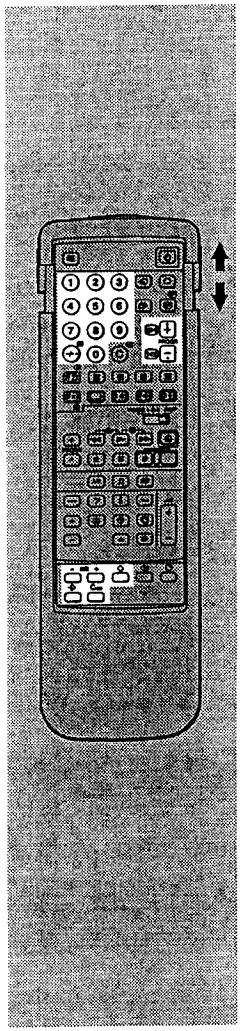
Action	Result
1 Select a programme number you want to name by pressing the PROGR +/- or the number buttons.	The selected programme number will appear.
2 Press →.	The programme number starts flashing.
3 Press ⊃.	The first column of the station name indication will start flashing.
4 Press + or – to select a letter in the alphabet, a number, or a blank space.	The letters of the alphabet, numbers and the space ("-") will appear sequentially.
5 Press ⊃.	The first character is now set and the second column will start flashing.
6 Repeat steps 4 and 5 to set each letter.	
7 Press ◇.	The channel is now stored and you have returned to TV mode.

How to tune in a channel temporarily

You can tune a channel in temporarily, if it has not been preset.

Action	Result
1 Press C.	The indication "C" appears on the screen.
2 Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4).	The channel is received, but it is not stored to any programme number.

1-3. BASIC TV OPERATION



How to Skip Programmes

Using the PROGR +/– buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

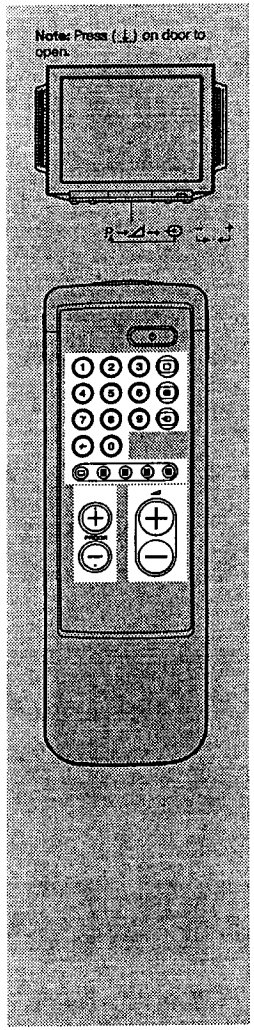
Action	Result
1 Press ⇢ to enter the preset mode.	The programme number will start flashing.
2 Select the programme number that you want to skip by pressing PROGR +/– or the number buttons.	The programme number changes.
3 Press C00.	The lowest channel number appears under the programme number.
4 Press ◇.	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 4 to skip other programme numbers.	

How to Fine Tune Manually

If the picture is distorted, you can fine tune the channel manually.

Action	Result
Press ⊞ + or – repeatedly until the picture looks normal.	The indication ← F → appears on the screen.
Press ⇢ to enter the preset mode.	The programme number starts flashing.
Press ◇.	The fine tuning is stored.

Note: The automatic fine tuning will function again when you preset the channel once more.



This section introduces you to the basic control functions which are available on the simple side of the remote commander.

How to Select Programmes

Before you can select programmes make sure that you have preset channels.

Action	Result
Press PROGR +/– or the number buttons. To select a double-digit number, use the –/– – button. For example, if you want to choose 23, press –/– –, 2, and then 3.	The selected programme is displayed.

How to Adjust the Volume

Action	Result
Press ◿ + or –.	The volume markers will appear.

How to Use Additional Functions

How to operate with the buttons on the TV

You can also select programmes and adjust the volume using the P→◿→⊖ and ⇢⇠ +/– buttons on the front of the TV.
For operation, first press the P→◿→⊖ button repeatedly so that the P (for programme), ◿ (for volume) or ⊖ (for input) indication appears on the screen, and then adjust with the ⇢⇠ +/– buttons.

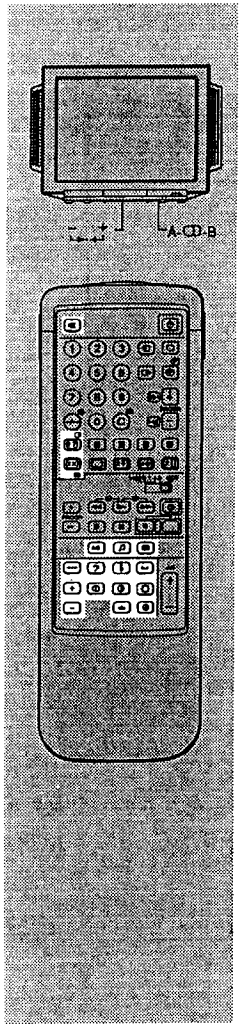
How to view the teletext

Press ▣. To return to the TV mode, press ▢.
For details about the teletext operation.

How to view the video input picture

Press ⊖. To return to the TV mode, press ▢. For further details.

1-4. ADVANCED TV OPERATION



This section shows you how to use convenient features and how to adjust the picture and sound to your taste.
Use the full-function side of the Remote Commander.

How to use on-screen display and special sound features

You can enjoy the following convenient features:

How to	Action	To resume normal picture sound
Display on-screen indications	Press .	Indications disappear after some seconds.
Display programme number	Press twice.	Press twice again.
Mute the sound	Press .	Press again.
Select a language in bilingual programmes	Press A/B. The selected mode of the A-B indicator on the TV lights up.	Press A/B again.
Set the sound to music listening position.	Press .	Press again.
Use the space sound (special acoustic effect)	Press .	Press again.
Request the time	Press .	Press again.

How to adjust the picture and sound

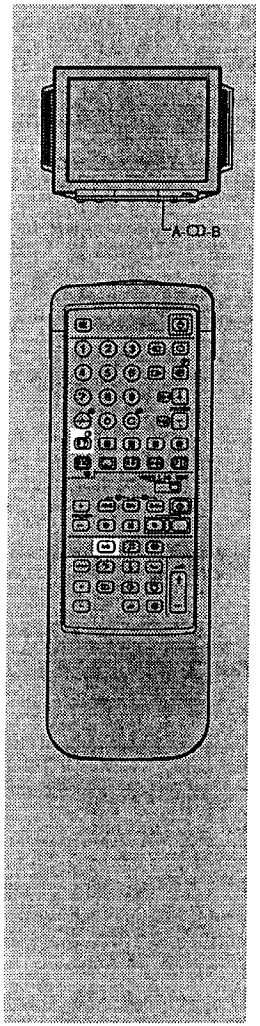
Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps.

For picture adjustment

To Adjust:	Press:	Then:	Result (+ ⟷ –):
Picture:			
Colour intensity			More ⟷ Less
Picture Contrast		+	More ⟷ Less
Brightness			Bright ⟷ Dark
Hue (for NTSC only)		–	Reddish ⟷ Greenish
Picture Sharpness			Sharp ⟷ Soft
Sound:			
Bass		+	More ⟷ Less
Treble			More ⟷ Less
Balance		–	More Right ⟷ More Left

To reset the picture and sound to factory set levels press .

On the set:
Press +/– buttons simultaneously.



How to select a NICAM broadcast*

This Sony TV has been designed to select Nicam broadcasts when available. Whenever a Nicam broadcast is received, the symbol appears briefly on the screen. When the Nicam programme ends, or you switch channels to one without Nicam, the symbol appears. To check if the channel you are watching is receiving Nicam, press the on screen display button , on the full function side of the remote commander.

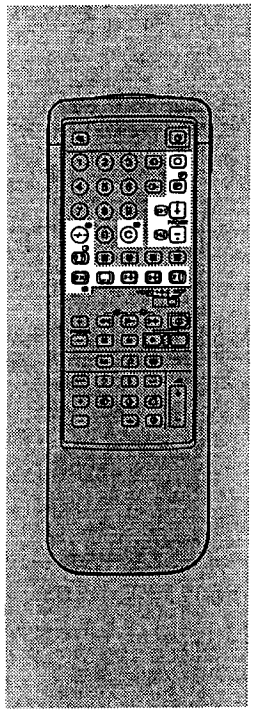
How to select the sound of your choice

Nicam programmes can be broadcast in three ways. You may select the sound you want to hear in each of these, by pressing the A/B button on the full function side of the remote commander.

Nicam service being broadcast	Action	The sound you hear	Indication on the TV A B
Stereo		Stereo	
	Press A/B	Normal	
	Press A/B again to return to Nicam mono.		
Mono		Mono	
	Press A/B	Normal	
	Press A/B again to return to Nicam mono.		
Bilingual		Language A	
	Press A/B	Language B	
	Press A/B	Normally broadcast language	
	Press A/B again to return to language A.		

* Depending on availability of service.

1-5. TELETEXT OPERATION



TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander. With the simple side of the Remote Commander, only the basic operation is possible.

How to View the Teletext

Action	Result
1 Select the channel which carries the teletext service you wish to view.	The channel changes on the screen.
2 Press ▣.	If the teletext signal is not broadcast, then p100 is displayed.
3 Input three digits for the page number using the number buttons. **Note:** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode: Press ▢. **To change the teletext channels:** First press ▢ to return to the TV mode, then repeat steps 1 to 3.	

Note
If the signal of the TV channel is weak, teletext errors may often occur.

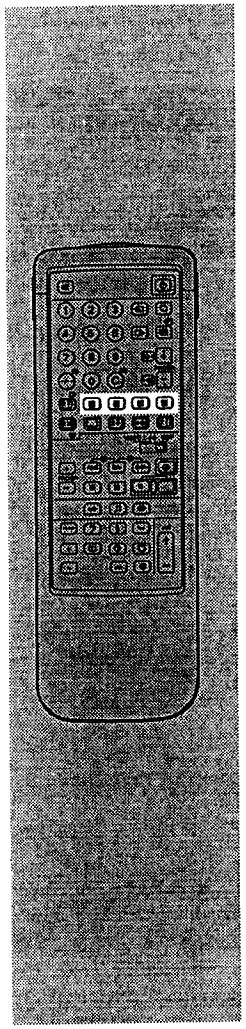
How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Access the next or preceding page	Press ⊞ (PAGE +) or ⊟ (PAGE –).	The next or preceding page appears.
Superimpose the teletext display on the TV programme.	Press ▣ once if you are in text mode, or press ▣ twice if in TV mode. To return to the normal teletext display press ▣ again.	The teletext displays are superimposed on the TV programme.
Prevent a teletext page from being updated or changed.	Press ⊠ (HOLD). To resume normal teletext reception, press ▣ (TEXT/MIX).	The HOLD symbol (⊠) appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press ⊞ once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	The upper half is enlarged.

Some of the features may not be available depending on the Teletext service.

Request the index page.	Press ⊟ (INDEX).	The index page appears.
Request the subtitle page (p888).	Press ▢.	The subtitle page is displayed (p888).
Reveal concealed information (e.g. answers to a quiz).	Press ⊡ (REVEAL). Press again to conceal the information.	The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	1. Request a new page	The numbers are entered.
	2. Press ⊠ (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press ▣ to view this page.	The requested page is displayed.
Have a requested page displayed at a pre-determined time.	1. Request a desired page.	The requested page is displayed.
	2. Press ⊠ (TP ON).	"T****" appears at the bottom or "0001" at the top of the screen.
	3. Enter the time you want to have the page displayed with four digits using the number buttons. (For example, enter 0730 for 7:30 AM.)	The time is entered on the screen.
	To watch the TV programme until the requested time Press ⊠ (TEXT CL). At the requested time, the page number will be displayed at the top of the screen. To view this page, press ▣. **To cancel the request** Display the teletext page, then press ⊠ (TP OFF).	

1-6. OPTIONAL CONNECTIONS/OPERATIONS



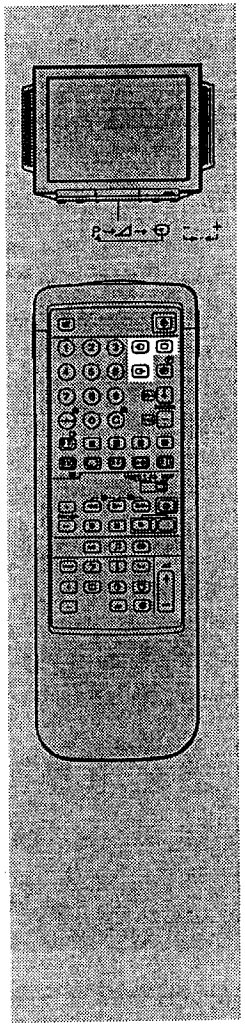
How to use the FASTEXT Feature

FASTEXT feature allows you to access pages quickly with one key operation. When a FASTEXT page is broadcast, a colour coded menu appears at the bottom of the screen. Each coloured prompt corresponds to the coloured buttons on either side of your Remote Commander.

Operation

Action	Result
Press one of the coloured buttons which corresponds to the coloured prompt on the teletext.	The selected teletext page appears.

Note
Correct FASTEXT operation depends on the necessary signals sent from the TV station.



How to view the video input picture

You can view the picture of video equipment connected to the input terminals by selecting the input mode.

Operation

Symbol	Result
Press ⊖ repeatedly to select the desired input.	⊖1 Symbol for the selected input appears. (See the table below.)
To return to the TV mode, press the ▢ button.	

Input modes

Symbol	Result
⊖ 1	Audio/video input through the ⊖-1 connector.
-▢	RGB input through the ⊖-1 connector.
⊖ 2	Audio/video input through the ⊖ 2/⊖ connector.
⊖ 2	S video input (from a VTR equipped with an S video output) through the ⊖ 2/⊖ connector.
⊖ 3	Audio/video input through ⊖ and ⊖ jacks on the front.
⊖ 3	S video input through the ⊖ connectors on the front (4-pin connector).
You can also select the input mode using the P→◿→⊖ button on the TV. In this case, first select ⊖, and then press +/– buttons to select the input.	

How to select the Output

The ⊖ 2/⊖ connector outputs four kinds of audio/video signals. You have to select one of them as follows.

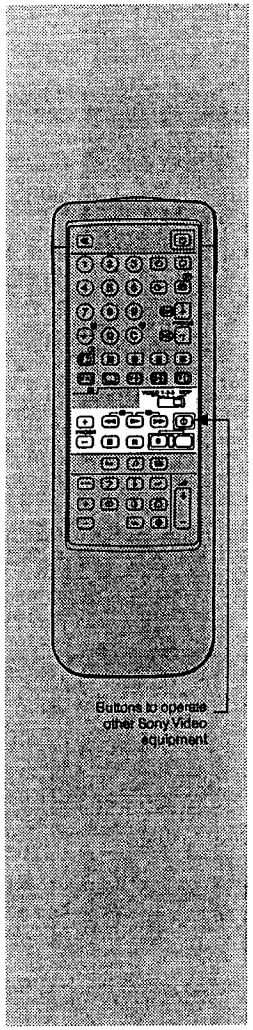
Operation

Action	Result
Press ⊖ repeatedly to select the desired input.	1⊖ Symbol for the selected output signals appears. (See the table below.)

Output modes

Symbol	Output from
1 ⊖	The audio/video signal from the ⊖-1 connector.
2 ⊖	The audio/video signal from the ⊖ 2/⊖ connector.
3 ⊖	The audio/video signal from the ⊖, ⊖ connectors.
TV ⊖	The audio/video signal from the ⊤ aerial terminal.

1-7. ADDITIONAL REMOTE COMMANDER OPERATION



How to Control Other Sony Video Equipment

By switching the VIDEO 1/2/3 MDP selector, you can operate most Sony video equipment (Beta VTR, 8 mm VTR, VHS VTR, and video disc player)

1 Set VIDEO 1/2/3 MDP selector according to the desired video equipment.
VIDEO 1: Beta or ED Beta VTR
VIDEO 2: 8 mm VTR
VIDEO 3: VHS VTR
MDP: Video disc player

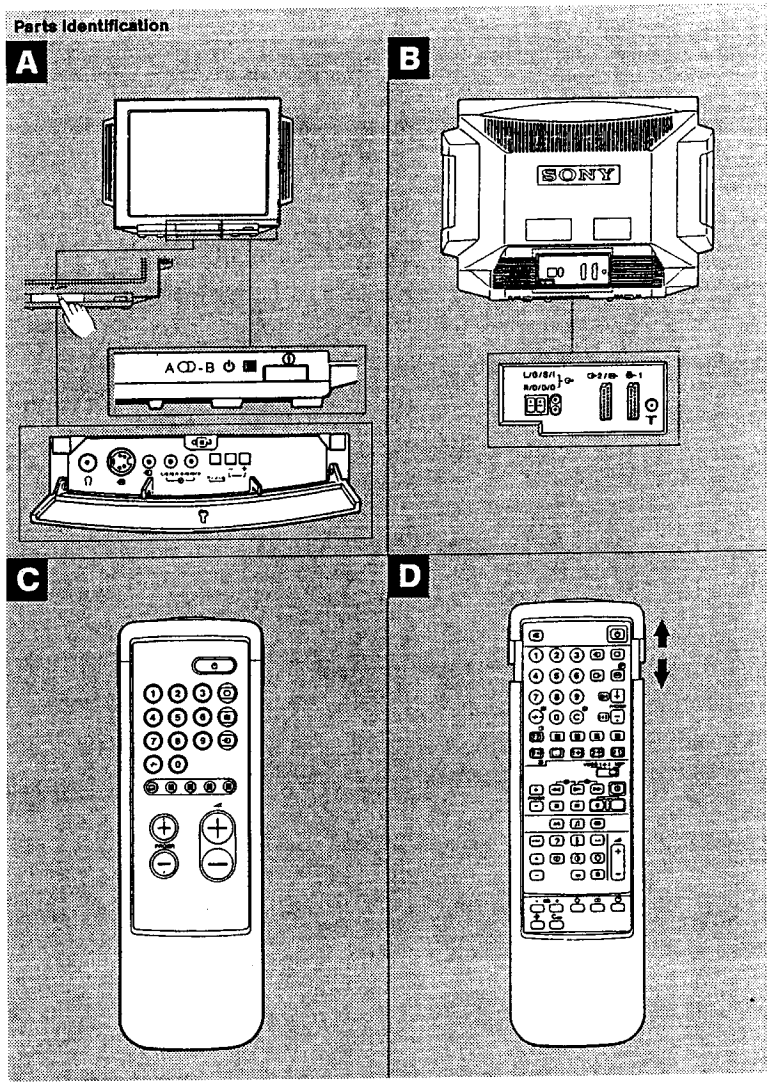
2 Use the buttons in the indicated area to operate video equipment.

Note:
When you use the ● button, be sure to press this button and the one on the right simultaneously.

Notes:
- If your equipment is furnished with COMMAND MODE selector, set the selector to the same position as the VIDEO 1/2/3 MDP selector on the supplied Remote Commander.
- If the equipment does not have a certain function, the corresponding button on the Remote Commander will not work.

1-8. ADDITIONAL INFORMATION

Parts identification



This section briefly describes the buttons and controls on the TV set and on the Remote Commander.
For more information, refer to the pages given next to each description.

A TV set – Front

Sign	Name
⏻	Main power switch
⏻	Standby indicator
A-CD-B	Bilingual A/B or NICAM indicators
Ω	Headphones jack (stereo minijack)
⊖⊖⊖	Input jacks (S-video/video/audio)
P→◿→⊖	Function selector (Programme/ volume/input)
- +	Adjustment buttons for function selector

B TV set – Rear

Sign	Name
LGSI RDDD	Loudspeaker terminals (top: left, bottom: right)
⊖ 2/⊖	21-pin Euro-AV connector S-video/ video input, TV/video output)
⊖ 1	21-pin Euro-AV connector (RGB/video input, TV/output)
⊖	Audio output jacks (phono jacks)
⊤	Aerial terminal (IEC type)

C Remote Commander – simple side

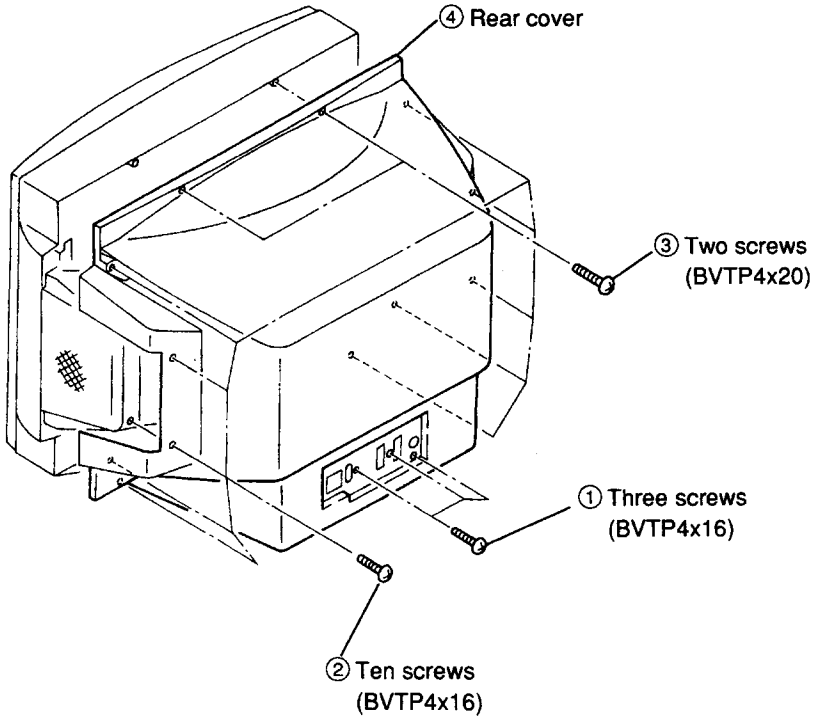
Sign	Name
⊖	Input mode selector
▣	Teletext button
▣▣▣▣	Fastext-buttons
▢	TV mode selector
⏻	Standby button
1, 2, 3, 4, 5, 6, 7, 8, 9 and 0	Number buttons
-/--	Double-digit entering button
◿+/-	Volume control button
PROGR +/-	Programme selector

D Remote Commander – full function side

Sign	Name
🔇	Mute on/off button
⏻	Standby button
1, 2, 3, 4, 5, 6, 7, 8, 9 and 0	Number buttons
⊖	Input mode selector
▢	TV power on/TV mode selector button
⊖	Output mode selector
▣	Teletext button
♫	Music button
A/B	Language selector in bilingual programme
-/--	Double-digit entering button
C	Direct channel entering button
⊖⊖	Space sound button
▣	Request time display
▣▣▣▣▣ ▣▣▣▣▣	Teletext operation buttons
▣▣▣▣	Fastext-buttons
▣	On-screen display button
⊹⊹⊹	Picture and sound adjustment reset button
◿+/-	Volume control
PROGR +/-	Programme selector
◑☼◔♛ ◿♪+/-	Picture and sound controls
VIDEO 1/2/3, MDP	Video equipment selector
◀◀ ▶▶▶ ■ II ●	Video equipment operation buttons
C00	Programme number clear button
⊹	Channel preset button
- ⊞ +	Tuning buttons
◇	Channel store button
▢	Station label button

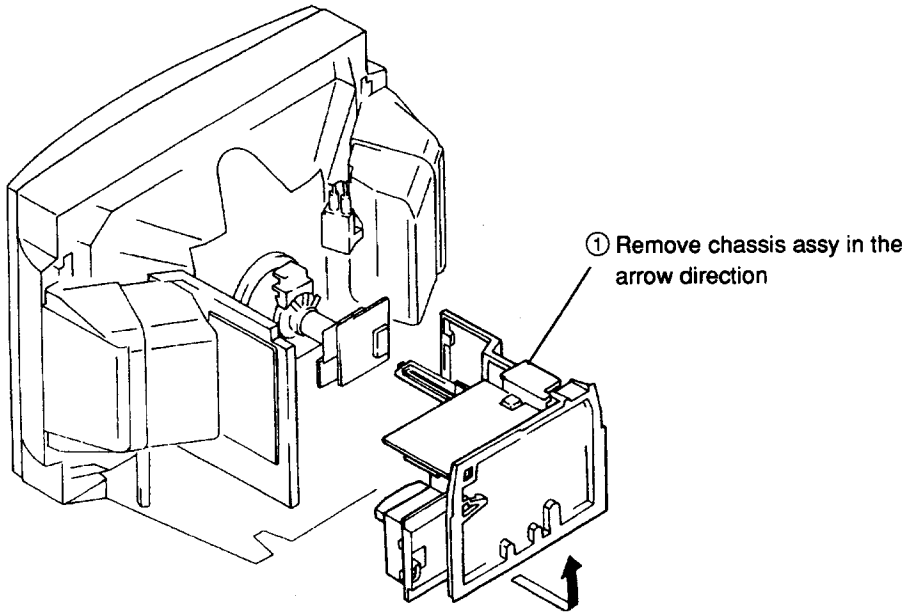
SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

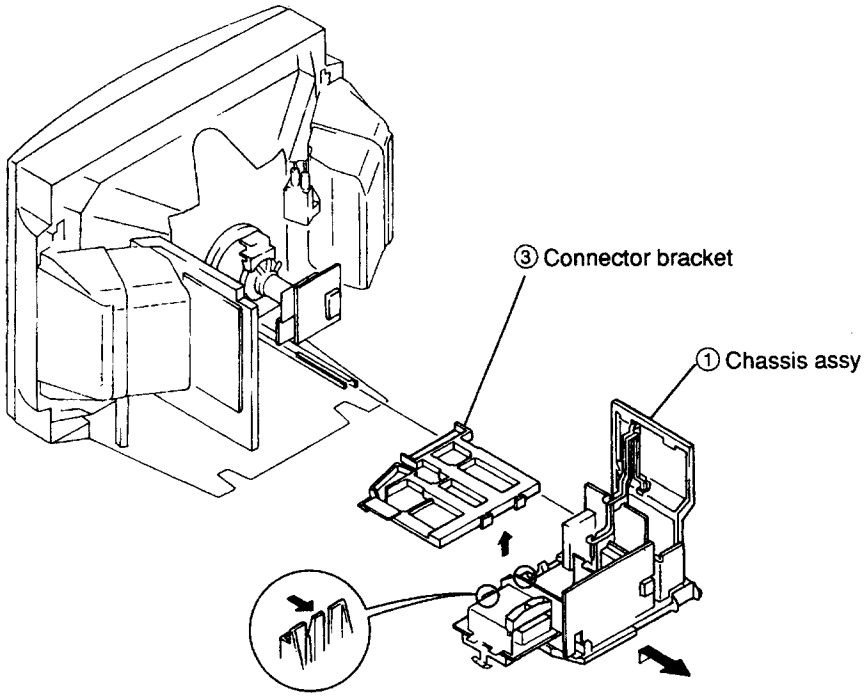


2-2. SERVICE POSITION

* Remove the connector braket and then perform the following servicing.
(refer to 2-3. CHASSIS ASSY REMOVAL.)

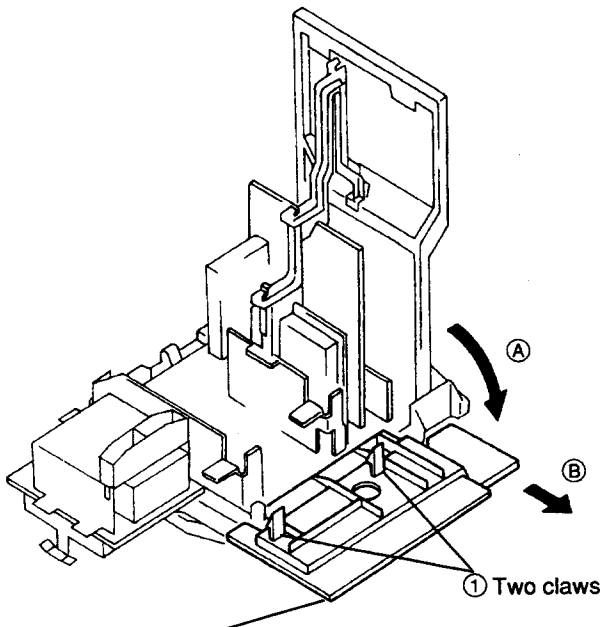


2-3. CHASSIS ASSY REMOVAL



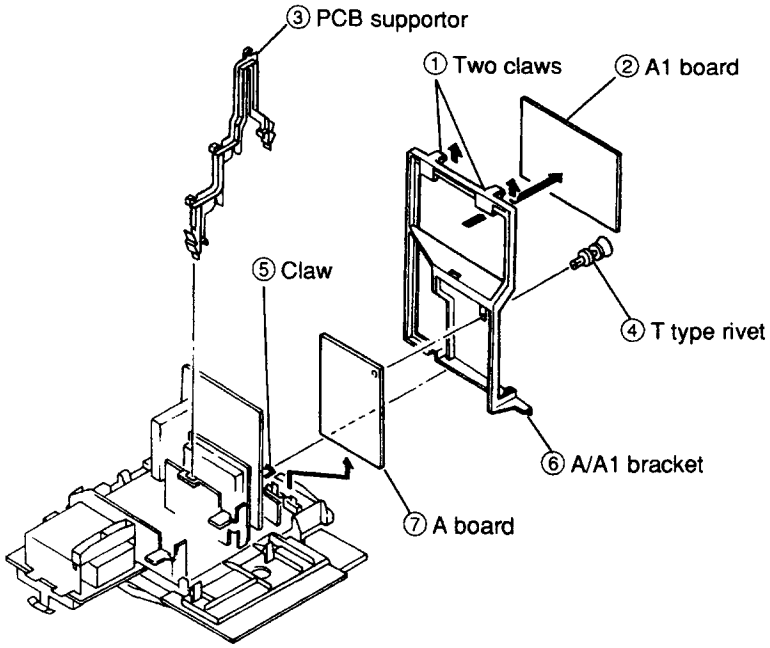
② Push two claws of the chassis assy in the direction of arrow and remove the connector bracket.

2-4. J BOARD REMOVAL

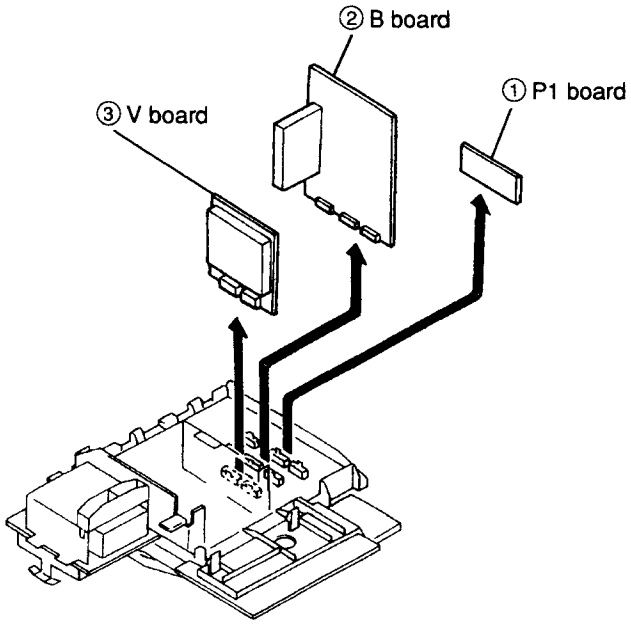


② Open J board in the direction of arrow Ⓐ. Remove the arrow Ⓑ direction.

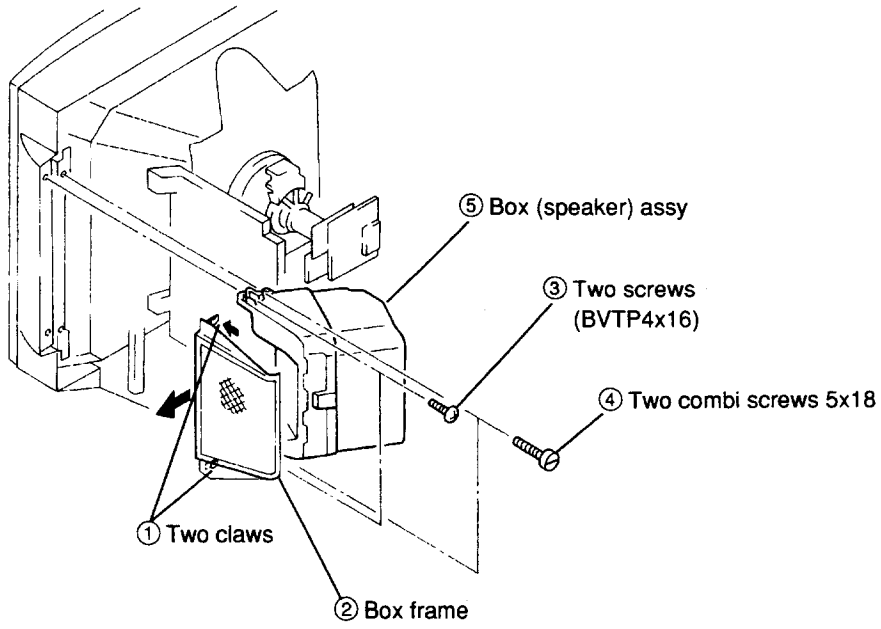
2-5. A AND A1 BOARDS REMOVAL



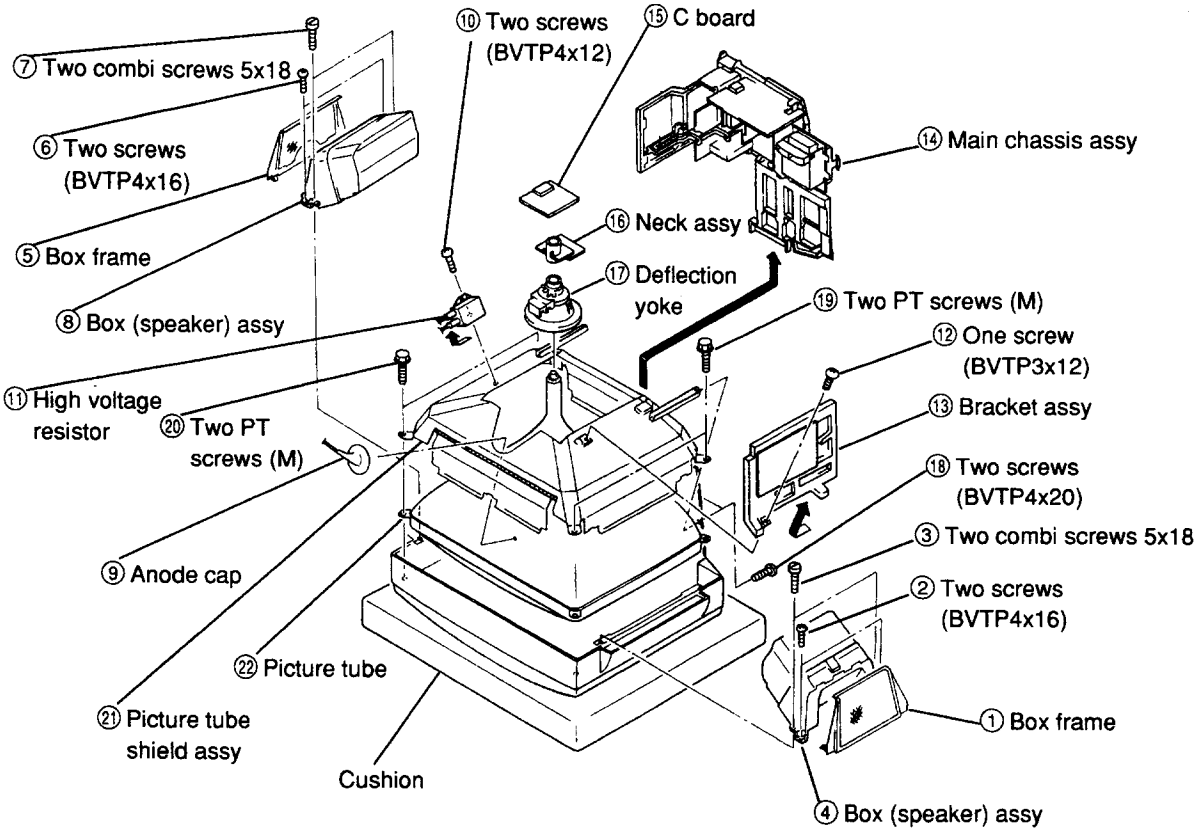
2-6. P1, B AND V BOARDS REMOVAL



2-7. SPEAKER REMOVAL



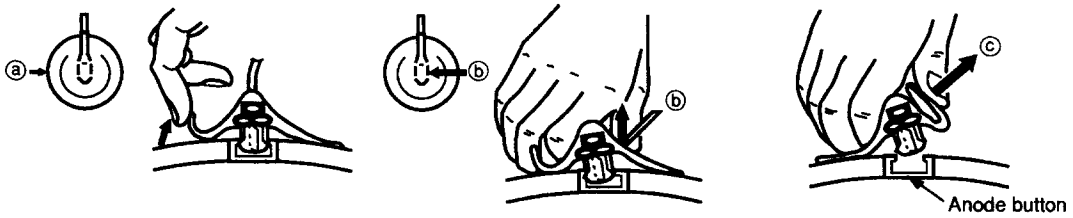
2-8. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield, or carbon painted on the CRT, after removing the anode.

• **REMOVING PROCEDURES**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

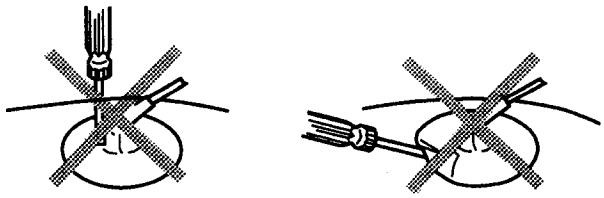
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of arrow ⓒ.

• **HOW TO HANDLE AN ANODE-CAP**

① Don't hurt the surface of anode-caps with sharped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3
SET-UP ADJUSTMENTS

- When complete re-adjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instruction to the contrary, set the controls and switches as follows:
  ◑ CONTRAST 80%
  (or Remote control normal)
  ☼ BRIGHTNESS . 50%

- Carry out the following adjustments in this order:

1. Beam landing
2. Convergence
3. Focus
4. White balance

Note: Test equipment required
1. Colour bar/pattern generator
2. De-gausser
3. d.c. power supply
4. Digital multimeter
5. Oscilloscope

Preparation:
- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and de-gauss the tube with the de-gausser.

3-1. BEAM LANDING

1. Input a white signal from the pattern generator.
   Contrast, Brightness } normal
2. Position neck assembly as shown in Fig 3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust the purity control so that the centre of the screen is red and either side are equal areas of blue and green.
   (see Figures 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that the entire screen is red. (See Figure 3-1.)
6. Switch the raster signal to blue and then to green to verify the setting.
7. Once the position of the deflection yoke has been decided, lock it in position with the screws.

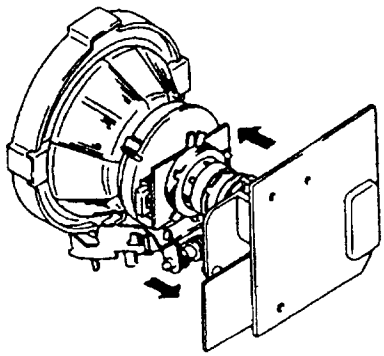


Fig. 3-1

Fig. 3-2

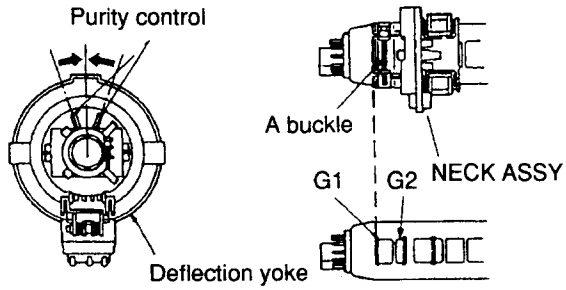


Fig. 3-3

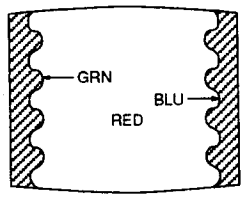
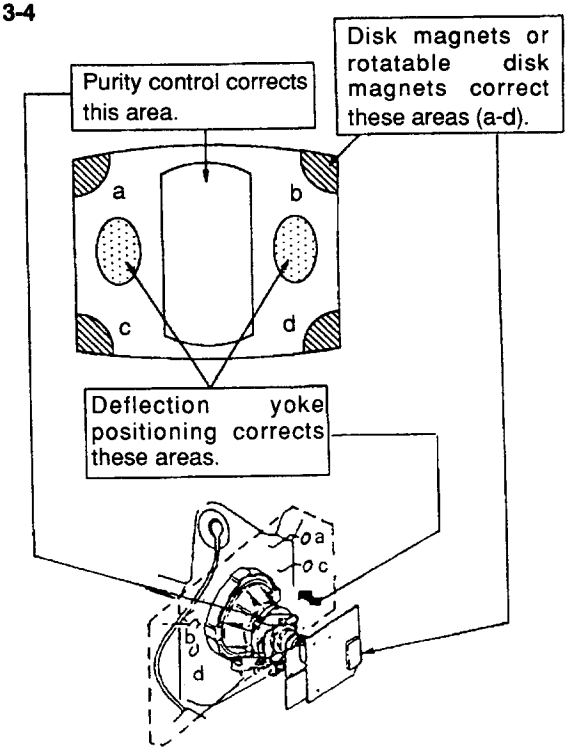


Fig. 3-4

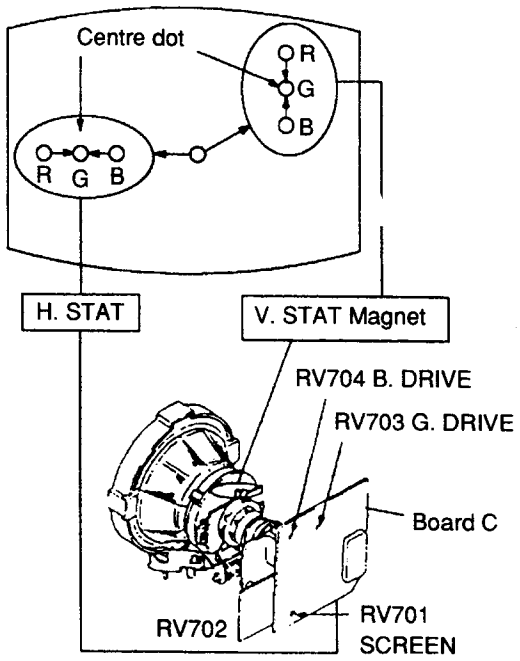


3-2. CONVERGENCE

Preparation:

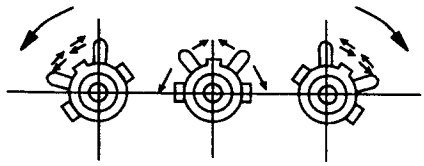
- Before starting this adjustment adjust the focus, horizontal size and vertical size.
- Set the BRIGHTNESS to minimum.
- Input a dot pattern from the Pattern generator.

(1) Horizontal and vertical static convergence



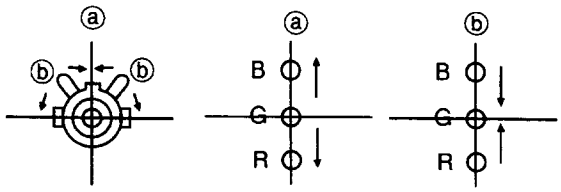
1. HORIZONTAL movement - Adjust the H.STAT control so that, at the centre of the screen, the red, green, and blue spots are on top of each other.
2. VERTICAL movement - Adjust the V.STAT magnet so that, at the centre of the screen, the red, green, and blue spots are on top of each other.
3. If the H.STAT variable resistor cannot bring the red, green, and blue spots together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet as described below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet affect each other)

- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT

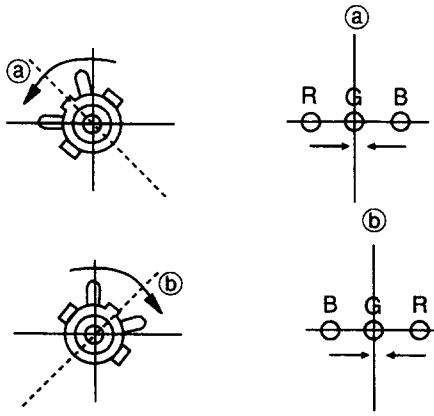


4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue spots move as shown below:

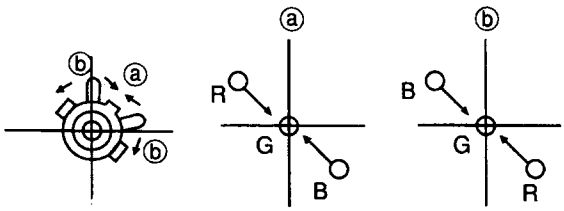
①



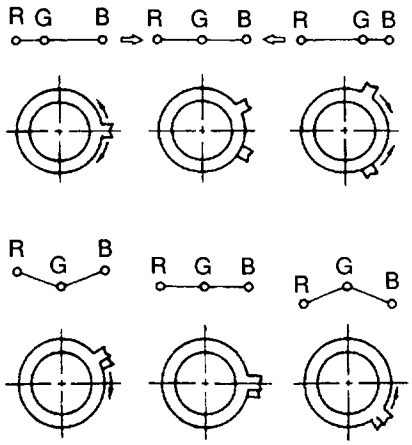
②



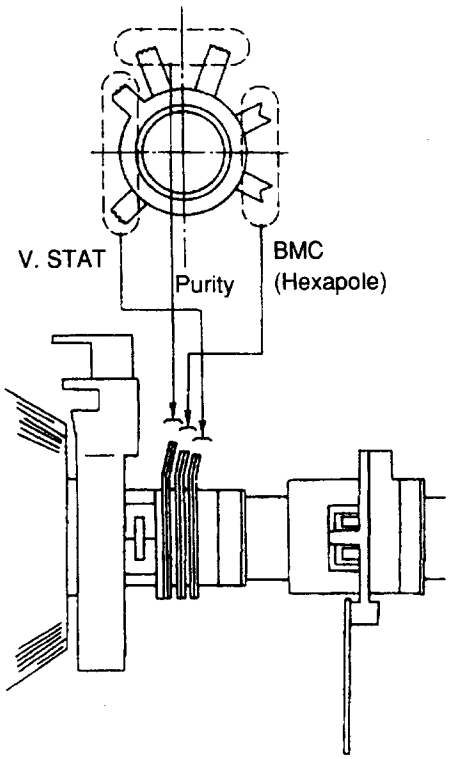
③



- Operation of BMC (Hexapole) Magnet



- The respective dot positions caused by moving each magnet interact. Therefore be sure to perform this adjustment while watching the screen.
  Use the H.STAT VR to adjust the red, green, and blue dots so that they coincide at the centre of the screen (by moving the dots in the horizontal direction).



(2) Dynamic Convergence Adjustment

1. Adjust the Y.CROSS (RV1705) and Y.BOW (RV1702) so that RED and BLUE, as shown in Fig. 3-6, become a=b=c.

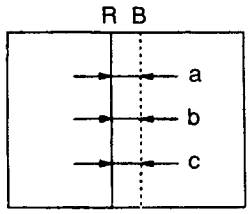


Fig. 3-6

2. Match the horizontal convergence at the centre of the screen with H STAT VR.
3. Adjust the CORNER BOW (RV1703), so that RED and BLUE, as shown in Fig. 3-7, become a=b=c and d=c=f.
   Note: At this point, if the proper relationship between a=c or d=f is not established, repeat the adjustment of Y.CROSS (RV1705).

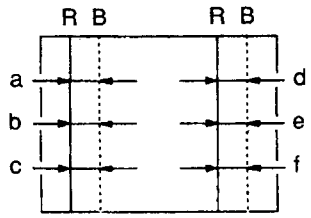


Fig. 3-7

4. Match the horizontal convergence at the centre of the screen with the H STAT VR.
5. Adjust the H TILT (RV1701) so that RED and BLUE, as shown in Fig. 3-8, become a=b.

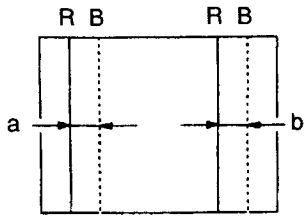


Fig. 3-8

6. Adjust the H AMP (RV1704) so that RED and BLUE, as shown in Fig. 3-9, become b=c.

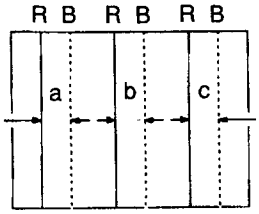
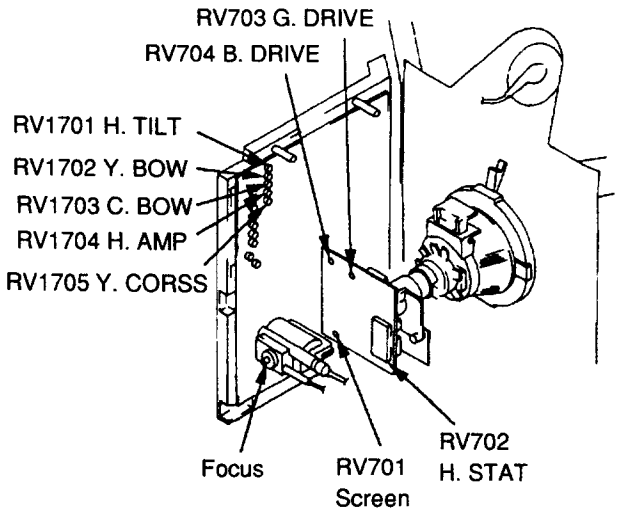
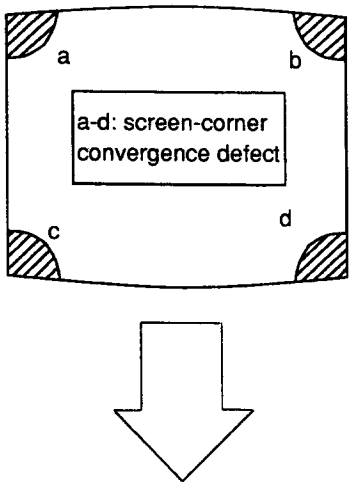


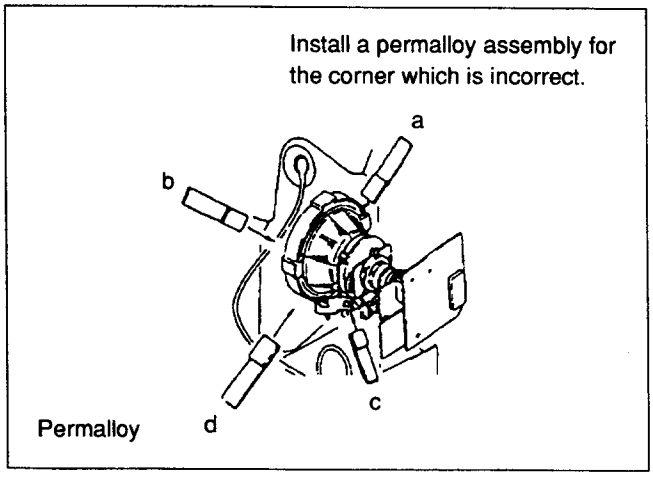
Fig. 3-9

7. Match the horizontal convergence at the centre of the screen with the H STAT VR.
8. When the H AMP is adjusted repeat the procedures described in Step (5) to Step (7).
9. If the convergence at the corners of the screen diverges, the adjustments described from Step (3) onwards should be repeated.



(3) Screen corner convergence





3-3. FOCUS

Adjust the focus to optimize the display.

3-4. WHITE BALANCE

Screen G2 setting

1. Input a dot signal from the Pattern generator.
2. Set the picture BRIGHTNESS control to its minimum level.
3. Apply 170V d.c., from an external power supply, to the R, G, and B cathodes.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the fly-back lines disappear.

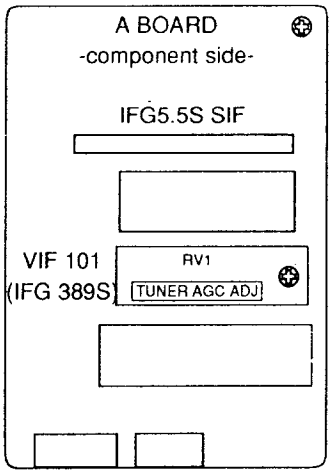
White balance adjustment

1. Input an all-white signal from the Pattern generator.
2. Set the PICTURE, BRIGHTNESS and COLOUR controls to their normal levels.
3. Use RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, unless there is a specific instruction to the contrary, set the PICTURE, COLOUR and BRIGHTNESS controls to their normal levels.

SECTION 4
CIRCUIT ADJUSTMENTS

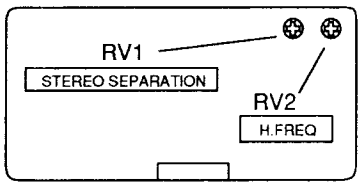
4-1. A BOARD ADJUSTMENTS



TUNER AGC ADJUSTMENT (IFG 389S)

1. Tune to an off-air signal.
2. Adjust AGC VR (IFG389S) so that snow noise and cross-modulation just disappear from the picture.

IFG5. 5S SIF



IFG5.5S SIF -component side-

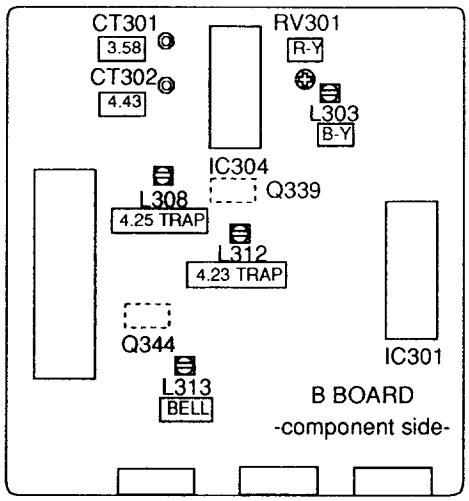
STEREO SEPARATION ADJUSTMENT (RVI)

1. Input stereo signals. (L-CH 400Hz, R-CH 1kHz)
2. Check the stereo indicator.
3. Connect an oscilloscope, via a 1kHz band-pass filter, to pin ⑧ (CH1) of CN1.
4. Adjust RV1 so that the 1kHz signal is reduced to a minimum.

H FREQ (RV2)

1. Input a PAL COLOUR BAR signal. Connect a jumper between IC4-pin ⑫ and GND.
2. Connect a frequency counter, via a 10:1 probe, to pin ④ IFG5.5S (HP) of CNl.
3. Adjust RV2 (H.FREQ) to 15.625kHz ± 50Hz.
4. After adjustment, remove the jumper.

4-2. B BOARD ADJUSTMENTS



REF OSC NTSC 3.58 MHz Adjustment (CT301)

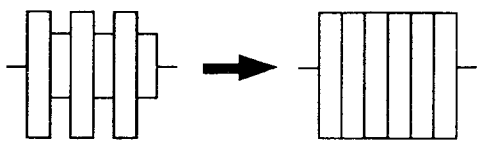
1. Input an NTSC 3.58 MHz COLOUR BAR pattern.
2. Short circuit between IC301-pin ⑰ and ground.
3. Adjust CT301 for the slowest picture movement.
4. Remove the jumper wire from IC301.

REF OSC Adjustment NTSC 4.43 MHz Adjustment (CT302)

1. Input an NTSC 4.43 MHz COLOUR BAR pattern.
2. Short circuit between IC301-pin ⑰ and ground.
3. Adjust CT302 for the slowest picture movement.
4. Remove the jumper wire from IC301.

BELL FILTER ADJUSTMENT (L313)

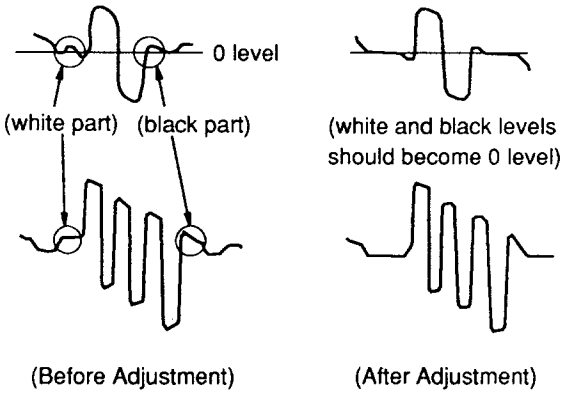
1. Input a SECAM colour bar signal.
2. Connect the oscilloscope to the emitter of Q344.
3. Adjust L313 so that the waveform is flat.



<Before Adjustment> <After Adjustment>

DISCRIMINATOR ADJUSTMENT (RV301 and L303)

1. Input a SECAM colour bar signal.
2. Connect the oscilloscope to IC304-pin ①.
3. Adjust RV301 until the white and black sections of the waveform at pin ① are at the 0 level.
4. Connect the oscilloscope to IC304-pin ③.
5. Adjust L303 until the white and black sections of the waveform at pin ③ are at the 0 level.



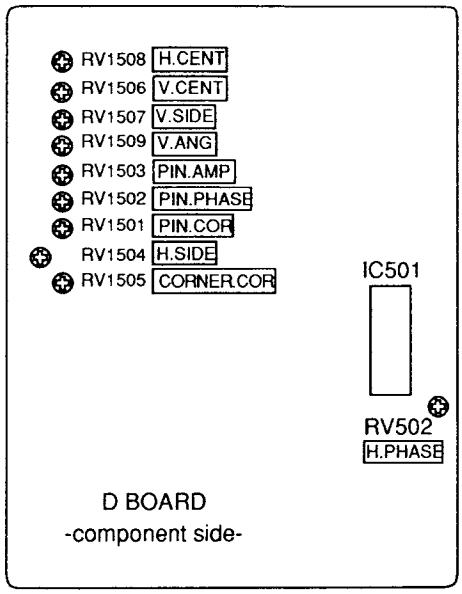
4.25 TRAP Adjustment (L308)

1. Input a SECAM COLOUR BAR pattern.
2. Connect an oscilloscope to the Q339 emitter.
3. Adjust L308 so that the 4.25 MHz waveform is at a minimum.

4.23 TRAP ADJUSTMENT (L312)

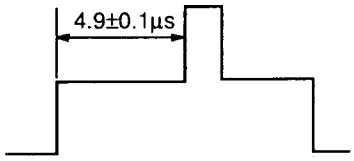
1. Input a SECAM COLOUR BAR pattern.
2. Connect an oscilloscope to the Q339 emitter.
3. Adjust L312 so that the 4.43 MHz waveform is minimum.

4-3. D BOARD ADJUSTMENT

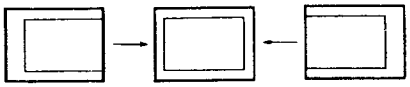


H.PHASE ADJUSTMENT (RV502)

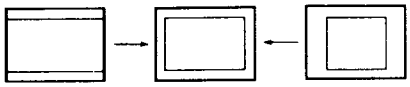
1. Input a PAL colour bar signal.
2. Set the PICTURE and BRIGHTNESS controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical centre.
4. Connect the oscilloscope to IC501-pin ⑪ (SCP).
5. Rotate RV502 to adjust the waveform to 4.9 ± 0.1µs.



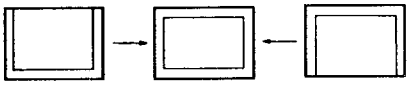
RV1508
H. CENT (HORIZONTAL CENTRE)



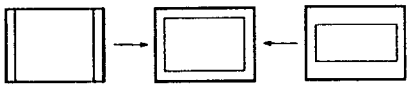
RV1504
H. SIZE (HORIZONTAL SIZE)



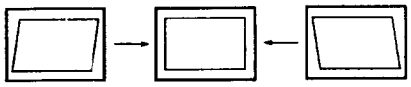
RV1506
V. CENT (VERTICAL CENTRE)



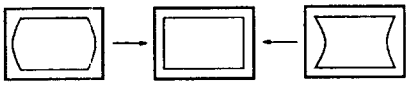
RV1507
V. SIZE (VERTICAL SIZE)



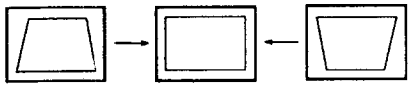
RV1509
V. ANGLE (VERTICAL ANGLE)



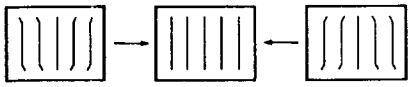
RV1503
PIN AMP (PINCUSHION AMPLITUDE)



RV1502
PIN PHASE (PINCUSHION PHASE)

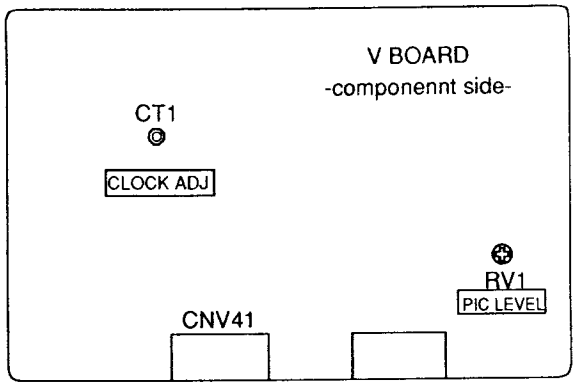


RV1501
PIN COR (PINCUSHION CORRECTION)



RV1505
CORNER COR (CORNER CORRECTION)

4-4. V BOARD ADJUSTMENTS



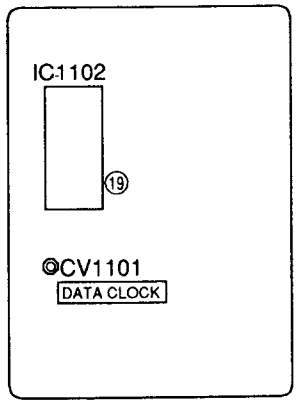
CLOCK ADJUSTMENT (CT1)

1. Remove CNV41 connector pin ③.
2. Put the system into text mode.
3. Adjust CT1 so that the picture is stable.

PIC LEVEL ADJUSTMENT (RV1)

1. Set the PICTURE control to maximum.
2. Adjust RV1 so that the RGB output is 0.75V.

4-5. A1 BOARD ADJUSTMENT

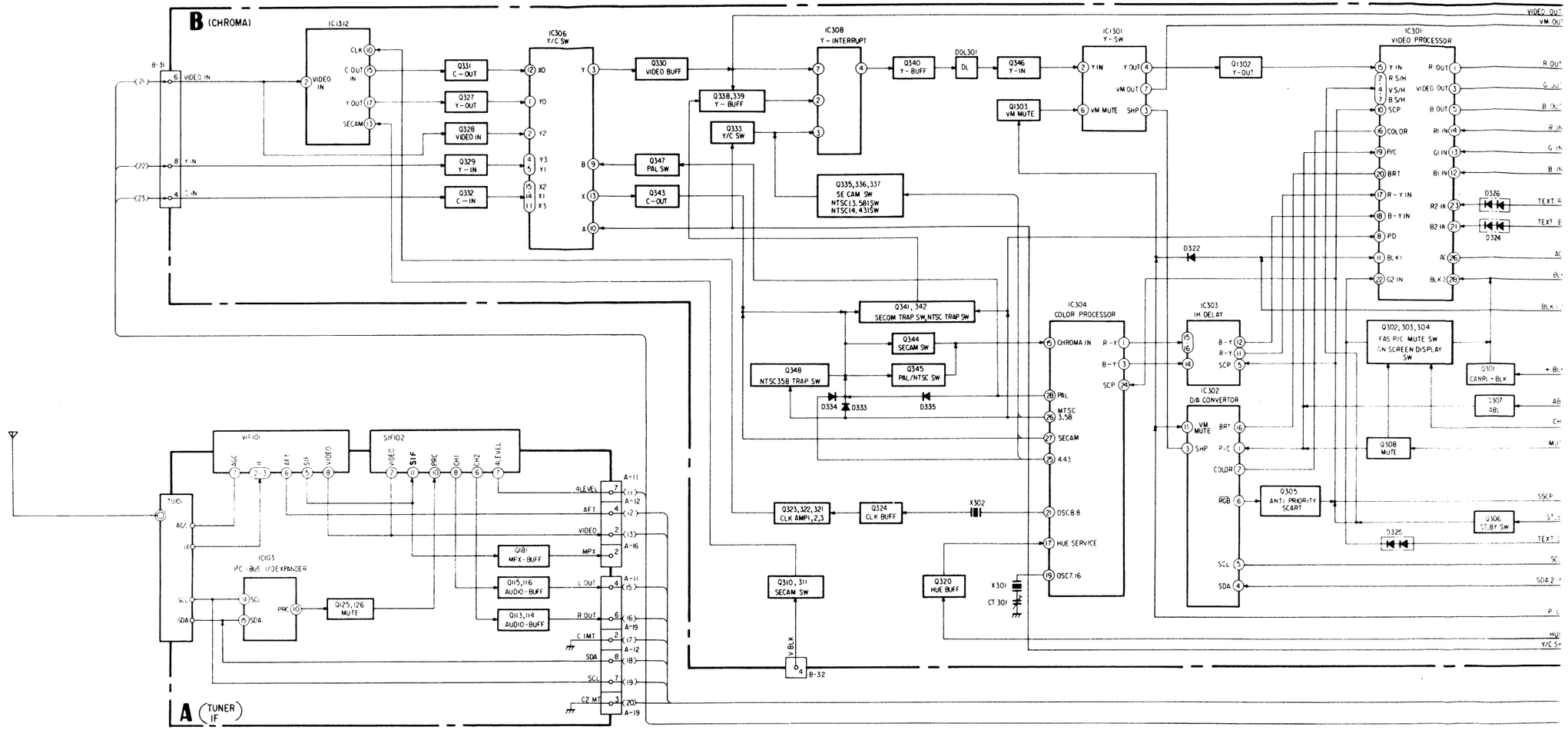


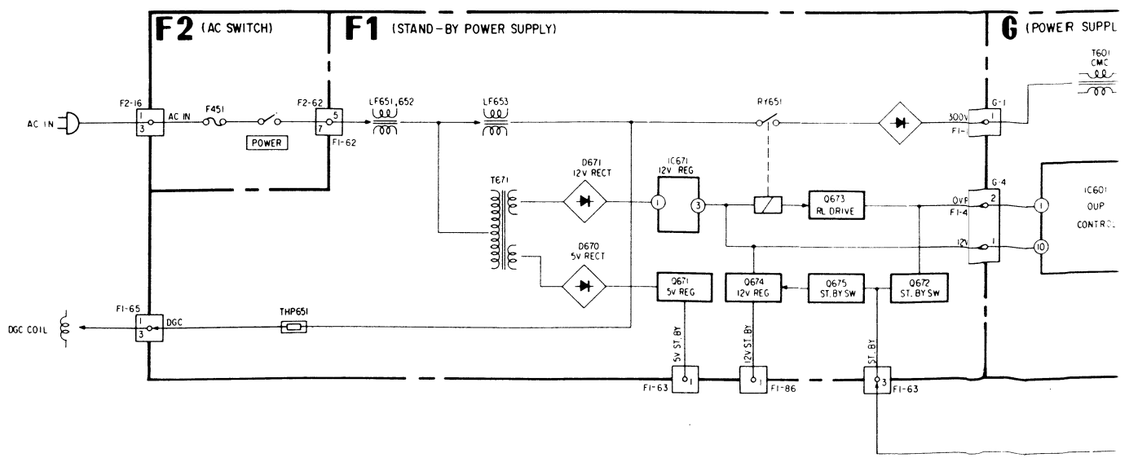
A1 BOARD (COMPONENT SIDE)

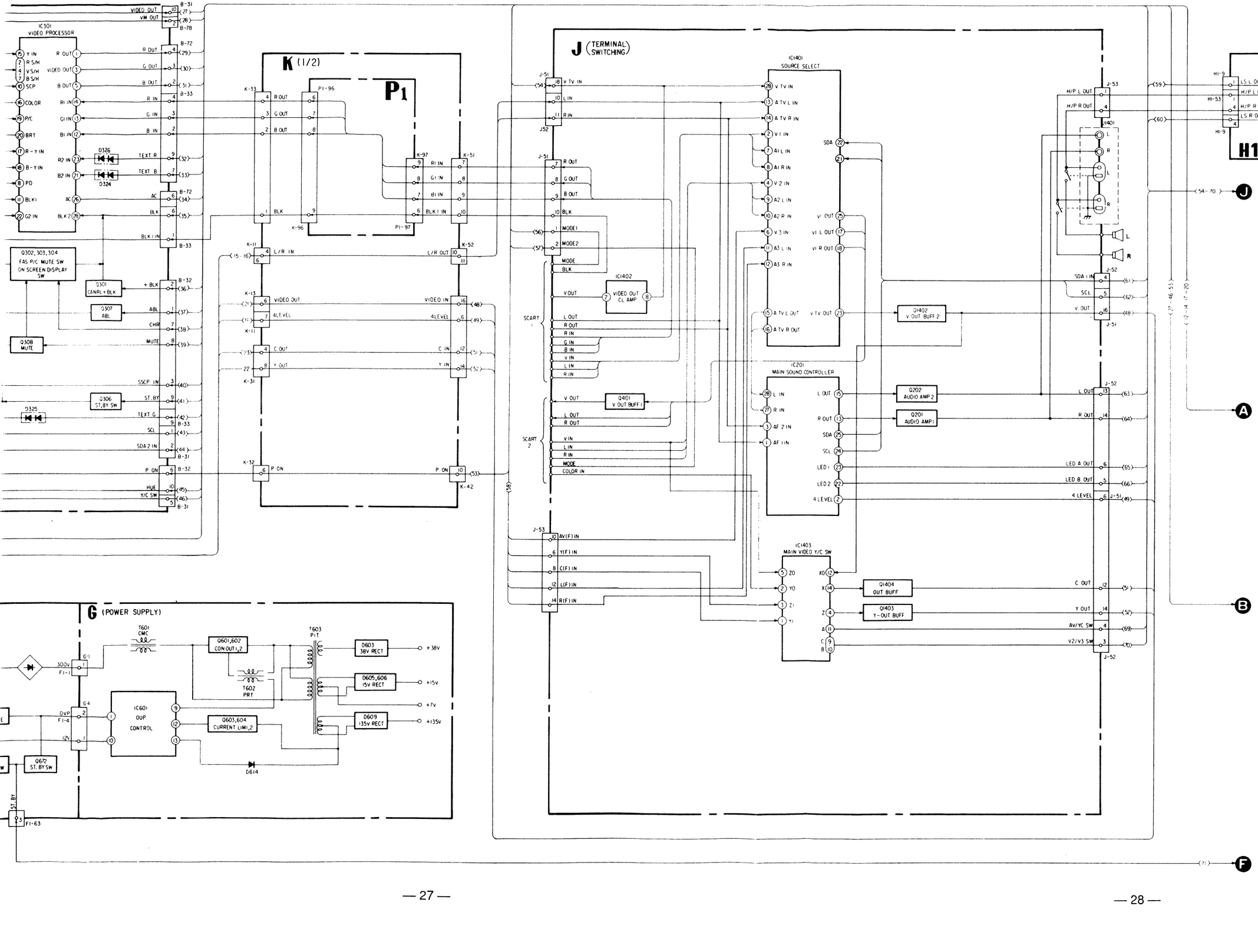
DATA CLOCK Adjustment (CV1101)

1. Tune in a no signal.
2. Connect a frequency counter to pin ⑲ of IC1102 (PCLK) through a probe of 10:1.
3. Adjust CV1101 (DATA CLOCK) so that frequency becomes 728.022kHz±1Hz.

5-2. BLOCK DIAGRAMS (2)

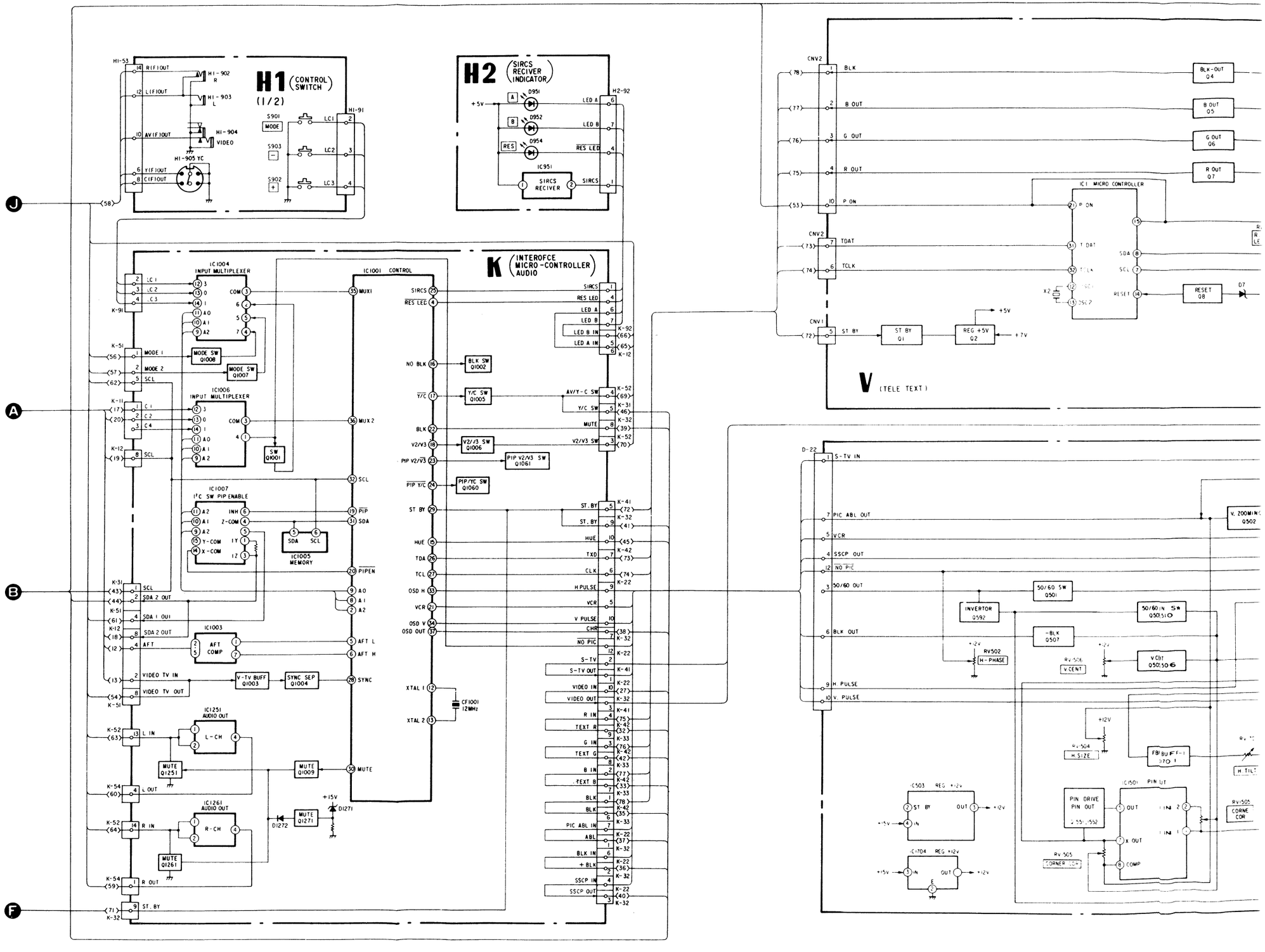


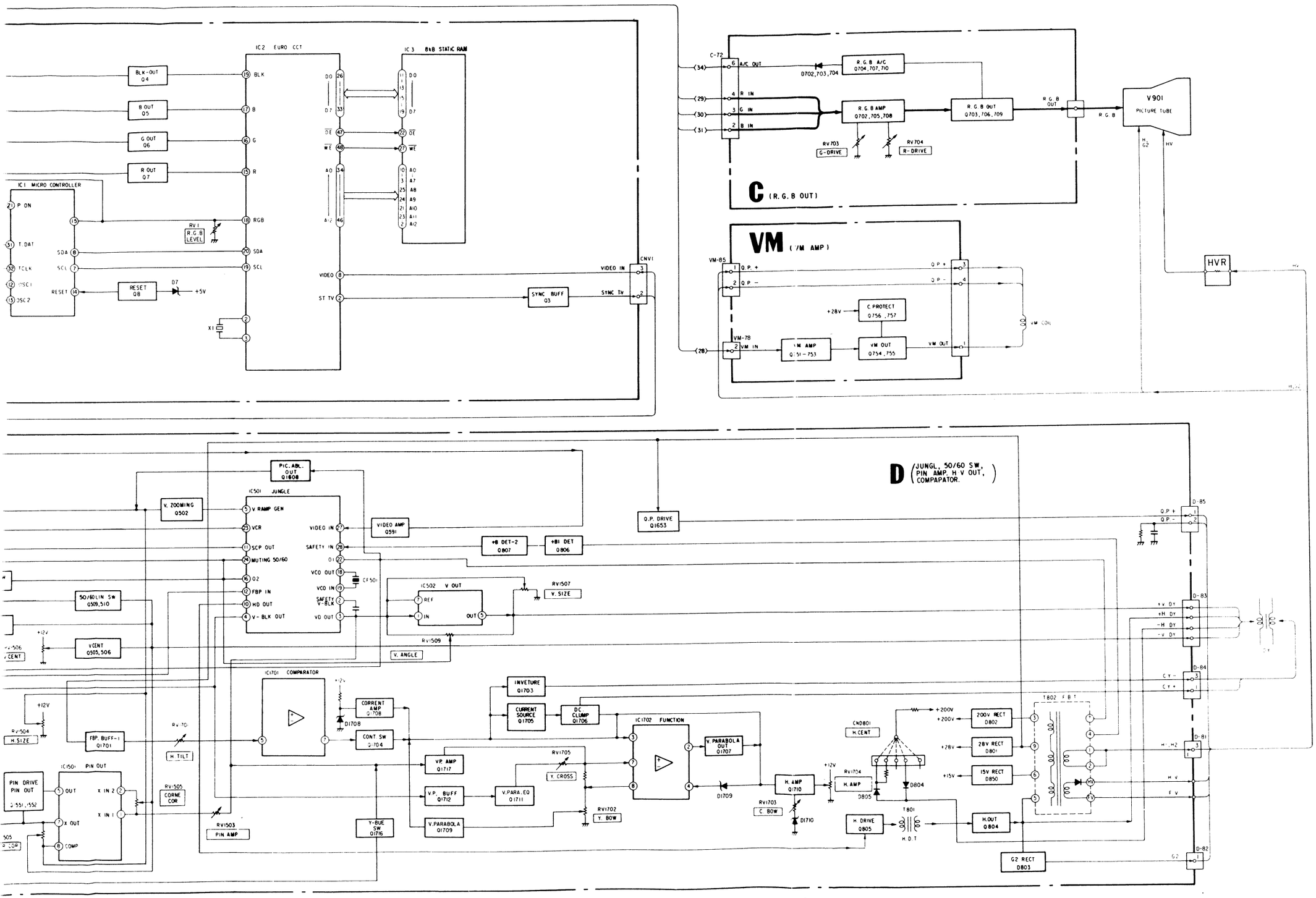




G (POWER SUPPLY)

5-3. BLOCK DIAGRAMS (3)




IC2 EURO CCT
IC3 8kB STATIC RAM
BLK-OUT Q4
B OUT Q5
G OUT Q6
R OUT Q7
IC1 MICRO CONTROLLER
P ON
T.DAT
TCLK
OSC1
OSC2
RESET
RV1 R.G.B LEVEL
RESET Q8
D7
+5V
X1
SDA
SCL
RGB
VIDEO
ST TV
VIDEO IN
SYNC TV
SYNC BUFF Q3
CNV1
C-72
A/C OUT
R IN
G IN
B IN
D702,703,704
R.G.B A/C Q704,707,710
R.G.B AMP Q702,705,708
R.G.B OUT Q703,706,709
RV703 G-DRIVE
RV704 R-DRIVE
R.G.B OUT
R.G.B
V901 PICTURE TUBE
M G2
HV
C (R.G.B OUT)
VM (V/M AMP)
VM-85
Q.P.+
Q.P.-
+28V
C.PROTECT Q756,757
VM COIL
VM-78
VM IN
V/M AMP Q751-753
VM OUT Q754,755
HVR
D (JUNGL, 50/60 SW, PIN AMP, H.V OUT, COMPAPATOR.)
PIC.ABL. OUT Q1608
V. ZOOMING Q502
IC501 JUNGLE
V RAMP GEN
VCR
SCP OUT
MUTING 50/60
FBP IN
HD OUT
V-BLK OUT
VIDEO IN
SAFETY IN
VCO OUT
VCO IN
SAFETY V-BLK
VD OUT
CF501
VIDEO AMP Q591
+B DET-2 Q807
+B1 DET Q806
Q.P. DRIVE Q1653
IC502 V OUT
REF
IN
OUT
RV1507 V. SIZE
RV1509 V. ANGLE
50/60LIN SW Q509,510
VCENT Q505,506
+12V
IC1701 COMPARATOR
RV1504 H.SIZE
FBP. BUFF-1 Q1701
RV1505 CORNE COR
RV1503 PIN AMP.
H. TILT
CORRENT AMP Q1708
D1708
CONT SW Q1704
Y-BUE SW Q1716
INVETURE Q1703
CURRENT SOURCE Q1705
D.C. CLAMP Q1706
IC1702 FUNCTION
V.P. AMP Q1717
V.P. BUFF Q1712
V.PARA.EQ Q1711
V.PARABOLA Q1709
V.PARABOLA OUT Q1707
RV1705 Y. CROSS
RV1702 Y. BOW
D1709
RV1703 C BOW
H. AMP Q1710
D1710
+12V
RV1704 H. AMP
D805
D804
CN801 H.CENT
H. DRIVE Q805
T801 H.O.T
H.OUT Q804
+200V
200V RECT D802
+28V
28V RECT D801
+15V
15V RECT D850
G2 RECT D803
T802 F.B.T
D-85
Q.P.+
Q.P.-
D-83
+V.DY
+H.DY
-H.DY
-V.DY
D-84
C.Y.-
C.Y.+
D-81
H.V
F.V
D-82
G2
C.Y.
IC501 PIN OUT
PIN DRIVE PIN OUT Q551,552
X IN 2
X IN 1
X OUT
COMP

5-4. CIRCUIT BOARDS LOCATION

Note:
Components identified by shading and marked ⚠ are critical for safety. Replace only with the part number specified.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NON-FLAMMABLE CARBON
	: FUSE	NON-FLAMMABLE FUSIBLE
	: RS	NON-FLAMMABLE METALOXIDE
	: RB	NON-FLAMMABLE CEMENT
	: RW	NON-FLAMMABLE WIREWOUND
	: ※	VARIABLE RESISTOR
COIL	: LF-8L	MINIATURE INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

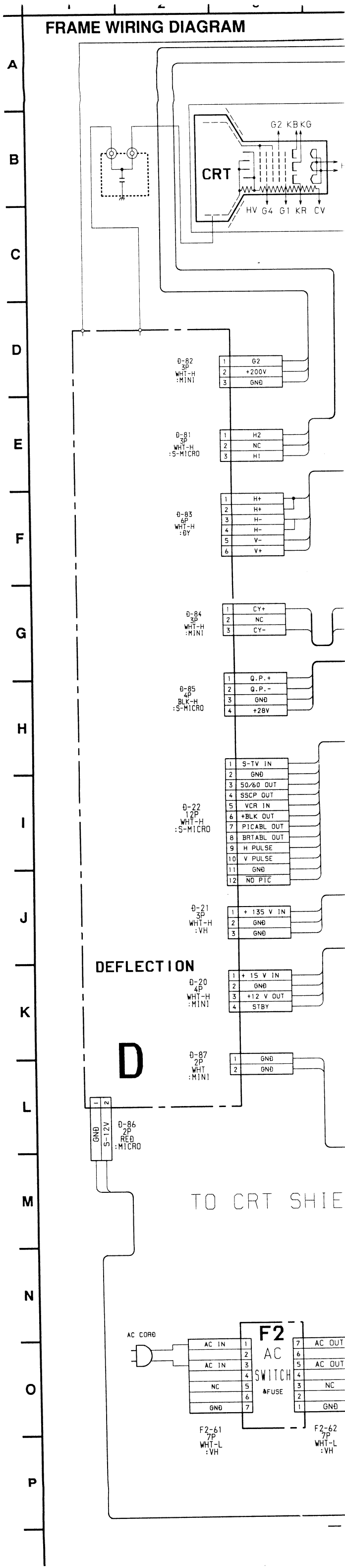
5-5. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

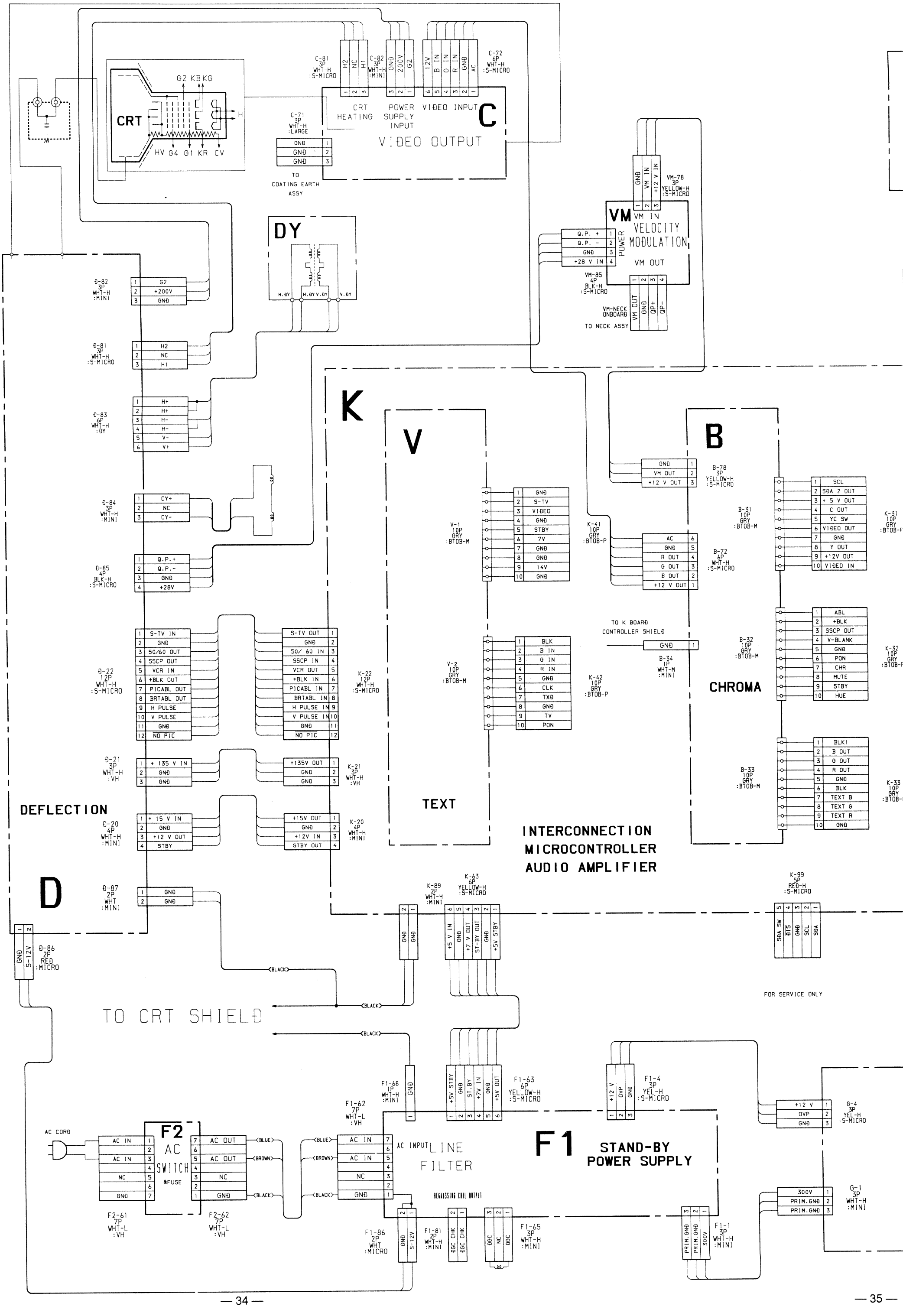
- All capacitors are in μF unless otherwise stated (p=pF). Working voltage of 50V or less are not indicated, except for electrolytics.
- Resistors which do not hane a power rating value shown are as follows.

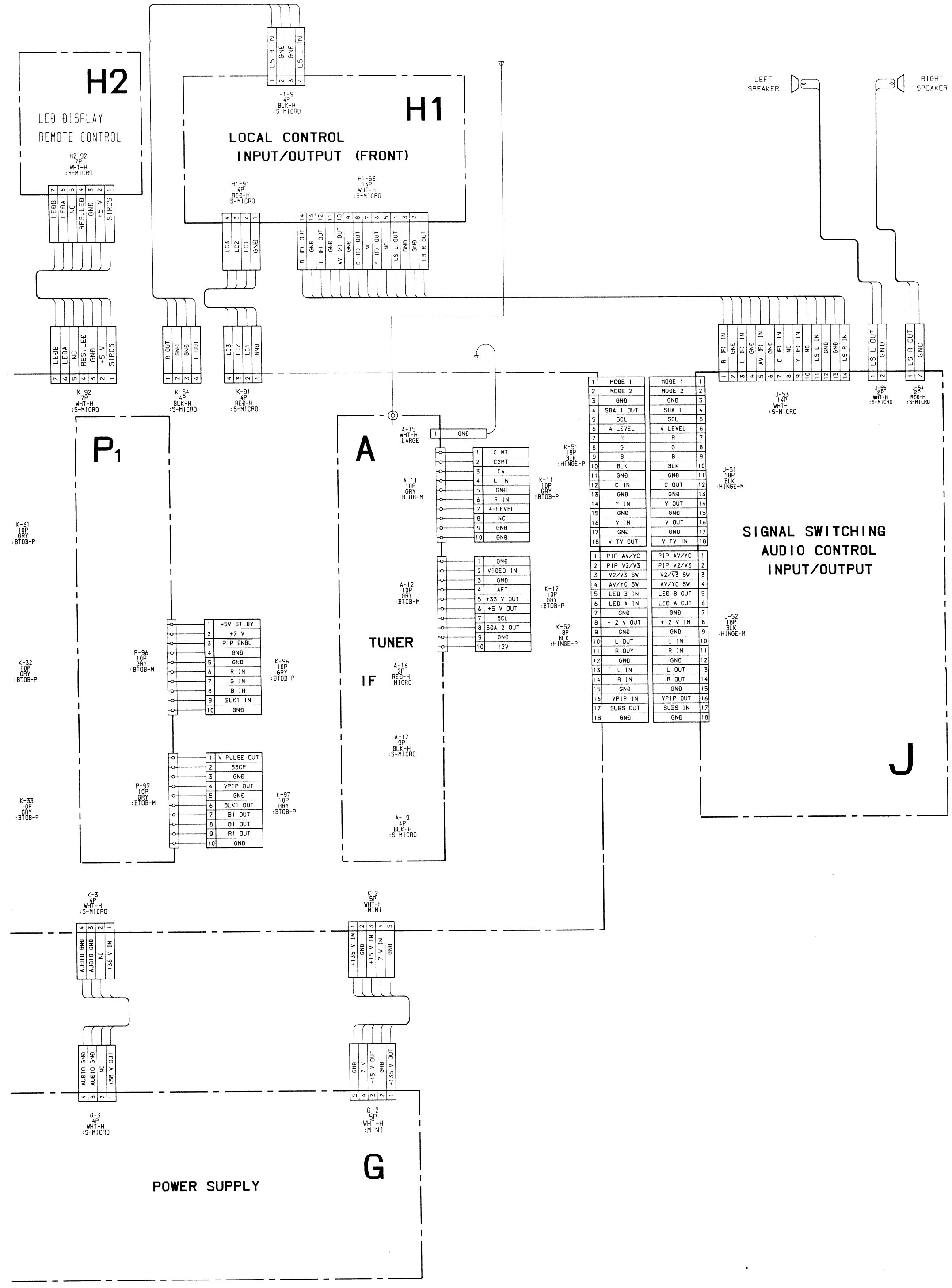
  Pitch: 5 mm
  Power rating: 1/4W

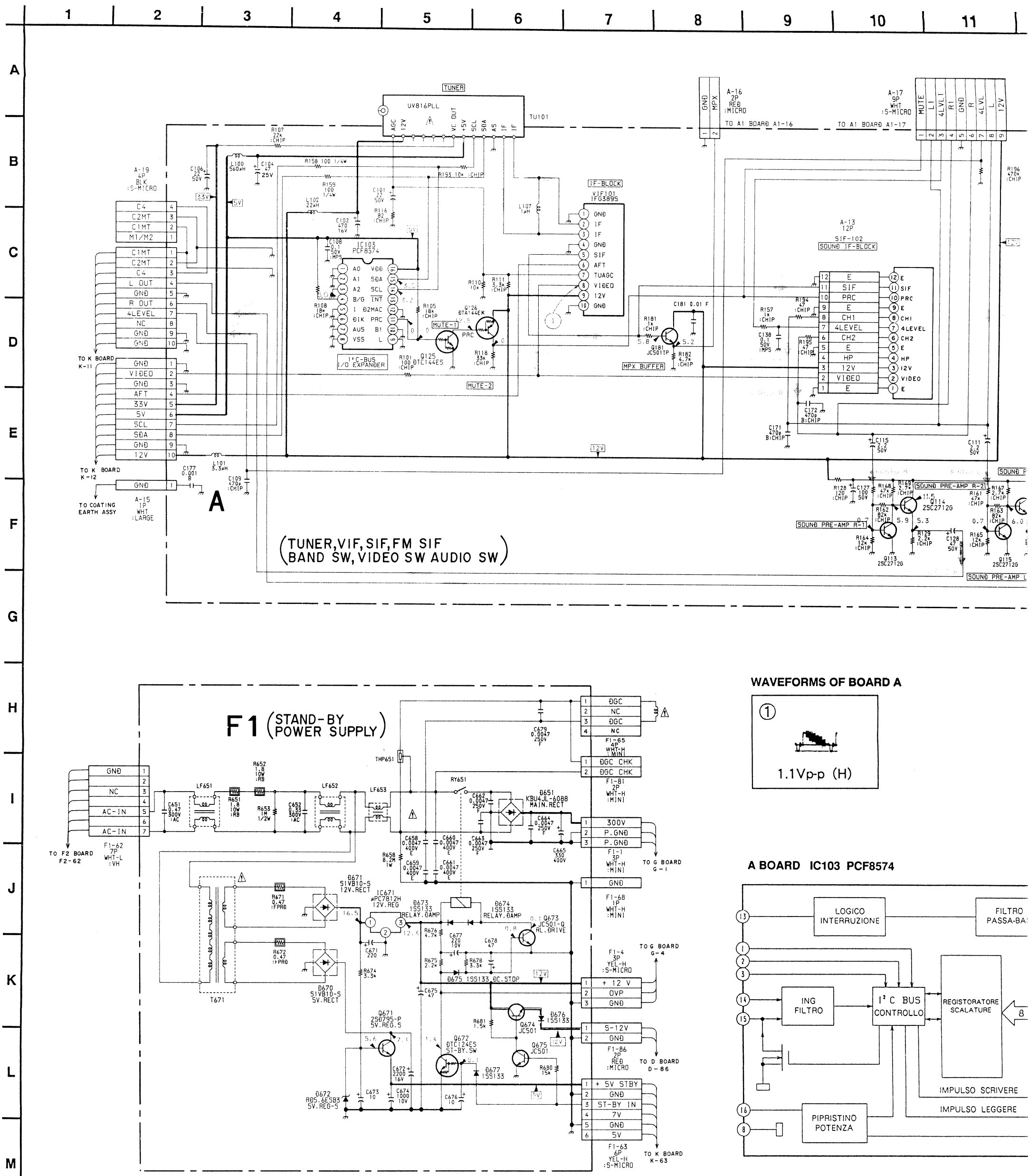
- Chip resistors are 1/10W.
- All resistor values are in Ohms. kΩ=1000Ω, MΩ=1000kΩ.
- : nonflammable resistor.
- : fusible resistor.
- △: internal component.
- □: panel outline or servicing adjustment.
- All variable and adjustable resistors have characteristic curve B. unless otherwise noted.
- All voltages shown are in Volts.
- Readings were taken with a 10 MΩ digital multimeter.
- Readings were taken with a colour-bar signal input.
- Voltage variations may be occur to normal production tolerance.
- ▬: Voltage supply rails.
- : Signal path.



FRAME WIRING DIAGRAM



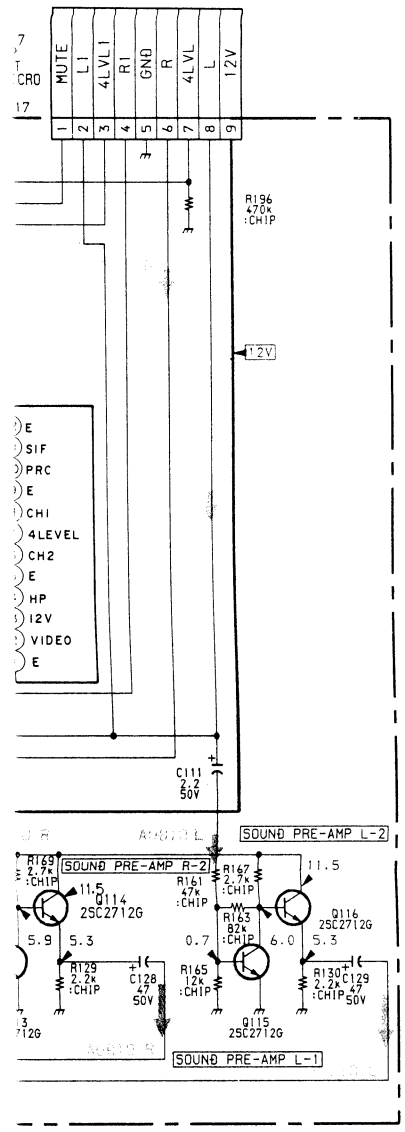

H2
LED DISPLAY
REMOTE CONTROL
H2-92
7P
WHT-H
:S-MICRO
LED B
LED A
NC
RES.LED
GND
+5 V
SIRCS
H1-9
4P
BLK-H
:S-MICRO
LS R IN
GND
GND
LS L IN
H1
LOCAL CONTROL
INPUT/OUTPUT (FRONT)
H1-91
4P
RED-H
:S-MICRO
LC3
LC2
LC1
GND
H1-53
14P
WHT-H
:S-MICRO
R (F) OUT
GND
L (F) OUT
GND
AV (F) OUT
GND
C (F) OUT
NC
Y (F) OUT
NC
LS L OUT
GND
GND
LS R OUT
LEFT SPEAKER
RIGHT SPEAKER
K-92
7P
WHT-H
:S-MICRO
K-54
4P
BLK-H
:S-MICRO
R OUT
GND
GND
L OUT
K-91
4P
RED-H
:S-MICRO
R (F) IN
GND
L (F) IN
GND
AV (F) IN
GND
C (F) IN
NC
Y (F) IN
NC
LS L IN
GND
GND
LS R IN
J-55
2P
WHT-H
:S-MICRO
LS L OUT
GND
J-54
2P
RED-H
:S-MICRO
LS R OUT
GND
J-53
14P
WHT-L
:S-MICRO
P1
A
J
SIGNAL SWITCHING
AUDIO CONTROL
INPUT/OUTPUT
A-15
WHT-H
:LARGE
GND
A-11
10P
GRY
:BTOB-M
C1MT
C2MT
C4
L IN
GND
R IN
4-LEVEL
NC
GND
GND
K-11
10P
GRY
:BTOB-P
K-51
18P
BLK
:HINGE-P
MODE 1
MODE 2
GND
SDA 1 OUT
SCL
4 LEVEL
R
G
B
BLK
GND
C IN
GND
Y IN
GND
V IN
GND
V OUT
GND
V TV OUT
J-51
18P
BLK
:HINGE-M
MODE 1
MODE 2
GND
SDA 1
SCL
4 LEVEL
R
G
B
BLK
GND
C OUT
GND
Y OUT
GND
V OUT
GND
V TV IN
A-12
10P
GRY
:BTOB-M
GND
VIDEO IN
GND
AFT
+33 V OUT
+5 V OUT
SCL
SDA 2 OUT
GND
12V
K-12
10P
GRY
:BTOB-P
K-52
18P
BLK
:HINGE-P
PIP AV/YC
PIP V2/V3
V2/V3 SW
AV/YC SW
LED B IN
LED A IN
GND
+12 V OUT
GND
L OUT
R OUY
GND
L IN
R IN
GND
VPIP IN
SUBS OUT
GND
PIP AV/YC
PIP V2/V3
V2/V3 SW
AV/YC SW
LED B OUT
LED A OUT
GND
+12 V IN
GND
L IN
R OUT
GND
VPIP OUT
SUBS IN
GND
J-52
18P
BLK
:HINGE-M
TUNER
IF
A-16
2P
RED-H
:MICRO
A-17
9P
BLK-H
:S-MICRO
A-19
4P
BLK-H
:S-MICRO
K-31
10P
GRY
:BTOB-P
K-32
10P
GRY
:BTOB-P
K-33
10P
GRY
:BTOB-P
P-96
10P
GRY
:BTOB-M
+5V ST.BY
+7 V
PIP ENBL
GND
GND
R IN
G IN
B IN
BLK1 IN
GND
K-96
10P
GRY
:BTOB-P
P-97
10P
GRY
:BTOB-M
V PULSE OUT
SSCP
GND
VPIP OUT
GND
BLK1 OUT
B1 OUT
G1 OUT
R1 OUT
GND
K-97
10P
GRY
:BTOB-P
K-3
4P
WHT-H
:S-MICRO
AUDIO GND
AUDIO GND
NC
+38 V IN
K-2
5P
WHT-H
:MINI
+135 V IN
GND
+15 V IN
7 V IN
GND
G-3
4P
WHT-H
:S-MICRO
AUDIO GND
AUDIO GND
NC
+38 V OUT
G-2
5P
WHT-H
:MINI
GND
7 V
+15 V OUT
GND
+135 V OUT
G
POWER SUPPLY

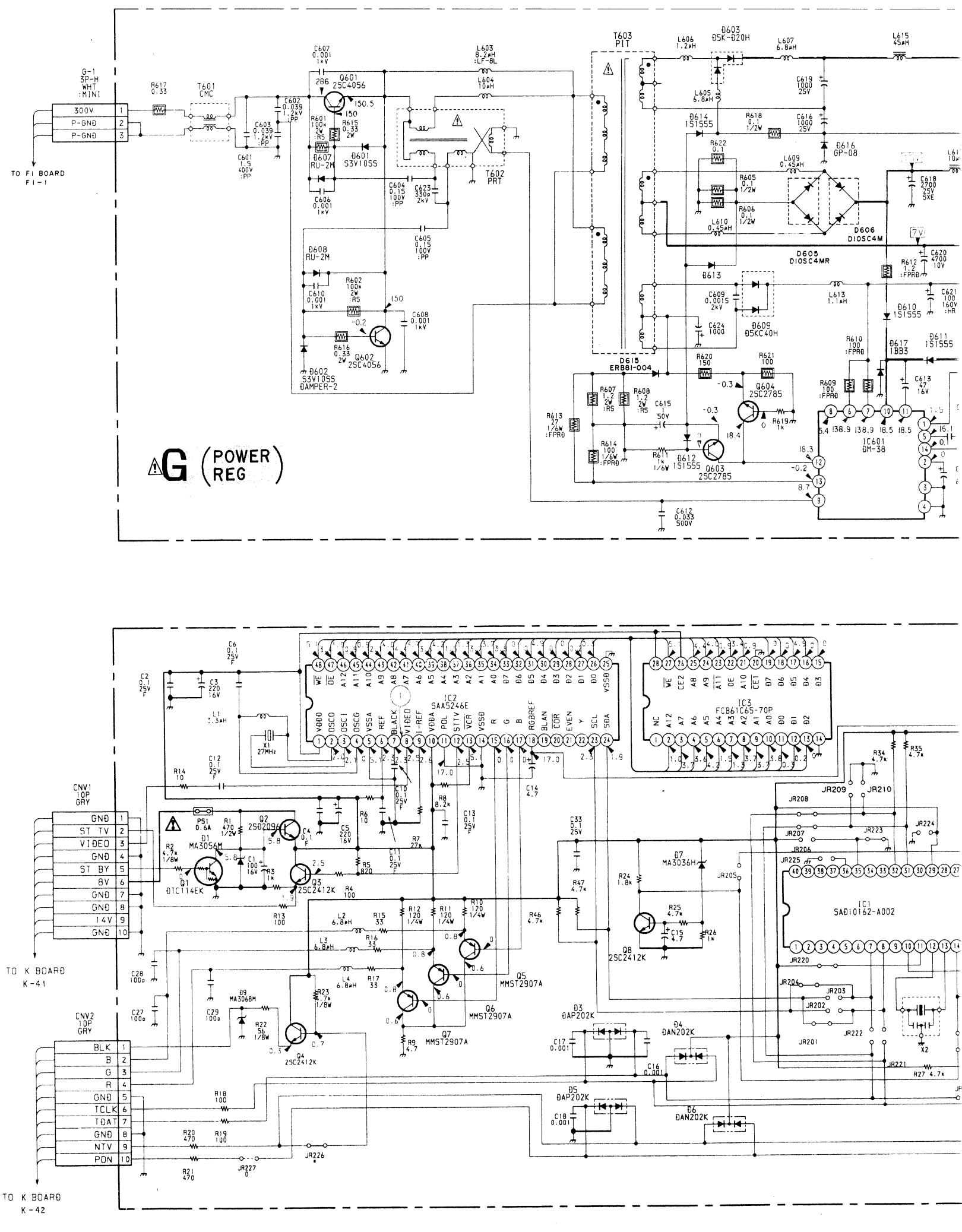


WAVEFORMS OF BOARD A

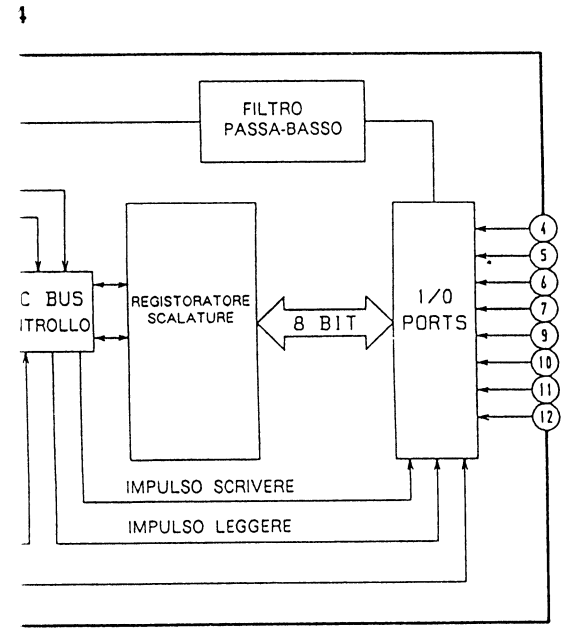
① 1.1Vp-p (H)

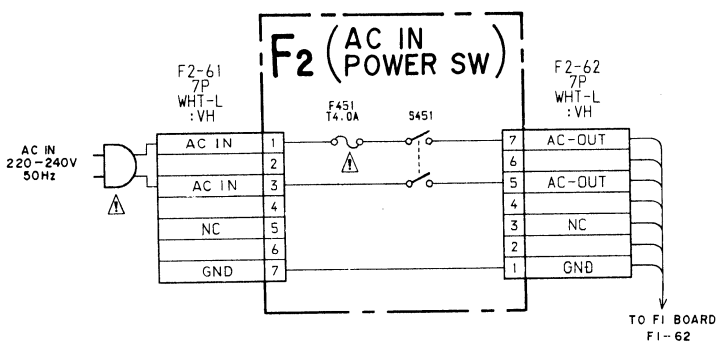
A BOARD IC103 PCF8574

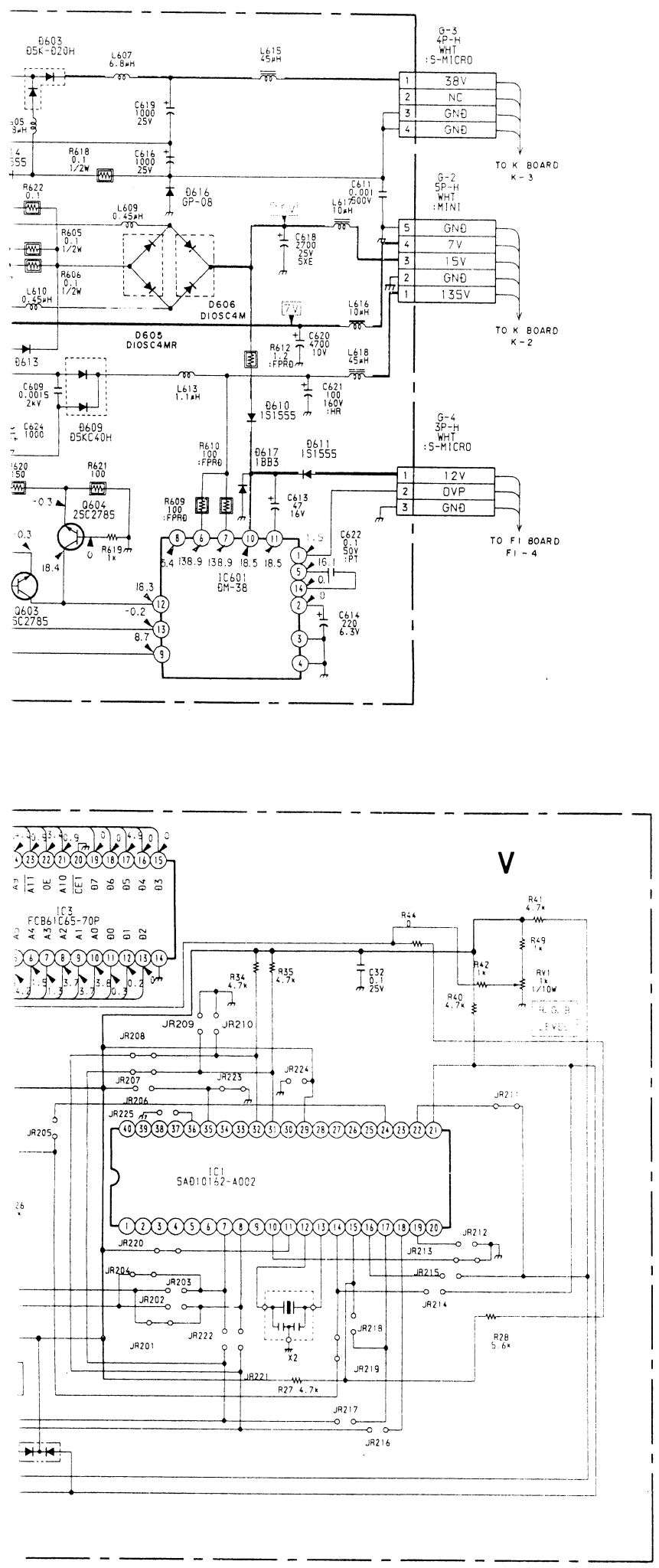

MUTE
L1
4LVL1
RI
GND
R
4LVL
L
12V
R196 470k :CHIP
12V
E
SIF
PRC
E
CHI
4LEVEL
CH2
E
HP
12V
VIDEO
E
C111 2.2 50V
SOUND PRE-AMP L-2
SOUND PRE-AMP R-2
R169 2.7k :CHIP
R167 2.7k :CHIP
R161 47k :CHIP
Q114 2SC2712G
Q116 2SC2712G
R163 82k :CHIP
R165 12k :CHIP
R129 2.2k :CHIP
C128 47 50V
R130 2.2k :CHIP
C129 47 50V
Q115 2SC2712G
SOUND PRE-AMP L-1

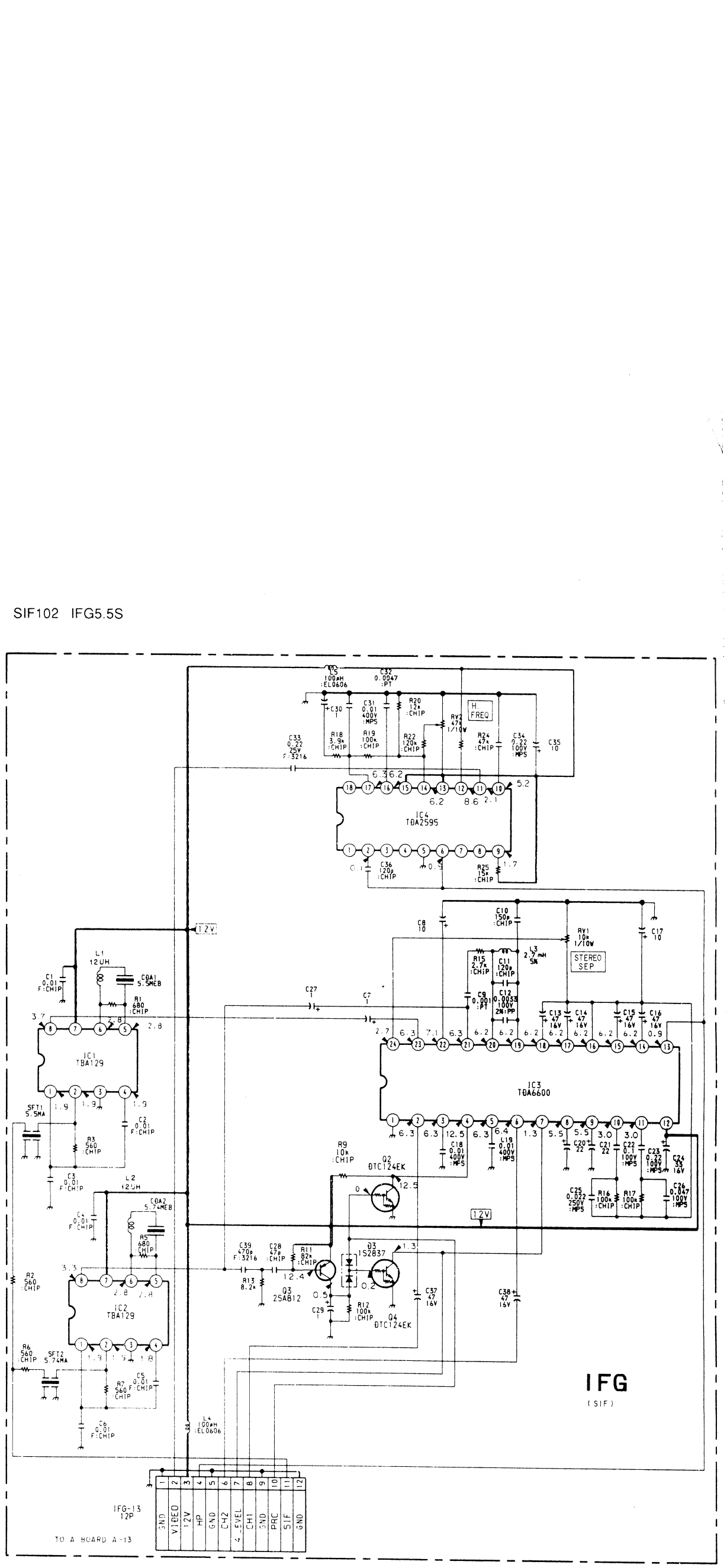

G-1 3P-H WHT :MINI
300V
P-GND
P-GND
TO FI BOARD FI-1
R617 0.33
T601 CMC
C602 0.039 1.2kV :PP
C603 0.039 1.2kV :PP
C601 1.5 400V :PP
C607 0.001 1kV
Q601 2SC4056
R601 100k 2W :RS
R615 0.33 2W
D607 RU-2M
D601 S3V10SS
C606 0.001 1kV
L603 8.2uH :LF-BL
L604 10uH
T602 PRT
C604 0.15 100V :PP
C623 330P 2kV
C605 0.15 100V :PP
D608 RU-2M
R602 100k 2W :RS
C610 0.001 1kV
R616 0.33 2W
Q602 2SC4056
C608 0.001 1kV
D602 S3V10SS DAMPER-2
T603 PIT
D603 D5K-D20H
L606 1.2uH
L607 6.8uH
L615 45uH
L605 6.8uH
C619 1000 25V
D614 1S1555
R618 0.1 1/2W
C616 1000 25V
D616 GP-08
R622 0.1
L609 0.45uH
R605 0.1 1/2W
R606 0.1 1/2W
L610 0.45uH
D606 D10SC4M
D605 D10SC4MR
C618 2700 25V SXE
C620 4700 10V
R612 1.2 :FPRD
D613
C609 0.0015 2kV
D609 D5KC40H
C624 1000
L613 1.1uH
C621 100 160V :HR
D610 1S1555
D617 1BB3
D611 1S1555
R610 100 :FPRD
D615 ERB81-004
R620 150
R621 100
R607 1.2 2W :RS
R608 1.2 2W :RS
C615 1 50V
Q604 2SC2785
R613 27 1/6W :FPRD
R614 100 1/6W :FPRD
R611 1k 1/6W
D612 1S1555
Q603 2SC2785
R619 1k
R609 100 :FPRD
C613 47 16V
IC601 BM-38
C612 0.033 500V
G (POWER REG)

A
IC2 SAA5246E
IC3 FCB61C65-70P
X1 27MHz
CNV1 10P GRY
GND
ST TV
VIDEO
GND
ST BY
8V
GND
GND
14V
GND
TO K BOARD K-41
PS1 0.6A
Q1 DTC114EK
D1 MA3056M
Q2 2SD2096
Q3 2SC2412K
D7 MA3036H
Q8 2SC2412K
IC1 SAD10162-A002
JR201
JR202
JR203
JR204
JR205
JR206
JR207
JR208
JR209
JR210
JR220
JR221
JR222
JR223
JR224
JR225
X2
CNV2 10P GRY
BLK
B
G
R
GND
TCLK
TDAT
GND
NTV
PON
TO K BOARD K-42
D9 MA3068M
Q4 2SC2412K
Q5 MMST2907A
Q6 MMST2907A
Q7 MMST2907A
D3 DAP202K
D4 DAN202K
D5 DAP202K
D6 DAN202K
JR226
JR227


FILTRO PASSA-BASSO
C BUS
NTROLLO
REGISTORATORE SCALATURE
8 BIT
I/O PORTS
IMPULSO SCRIVERE
IMPULSO LEGGERE


F2 (AC IN POWER SW)
F2-61 7P WHT-L :VH
F2-62 7P WHT-L :VH
F451 T4.0A
S451
AC IN 220-240V 50Hz
AC IN
AC IN
NC
GND
AC-OUT
AC-OUT
NC
GND
TO FI BOARD FI-62

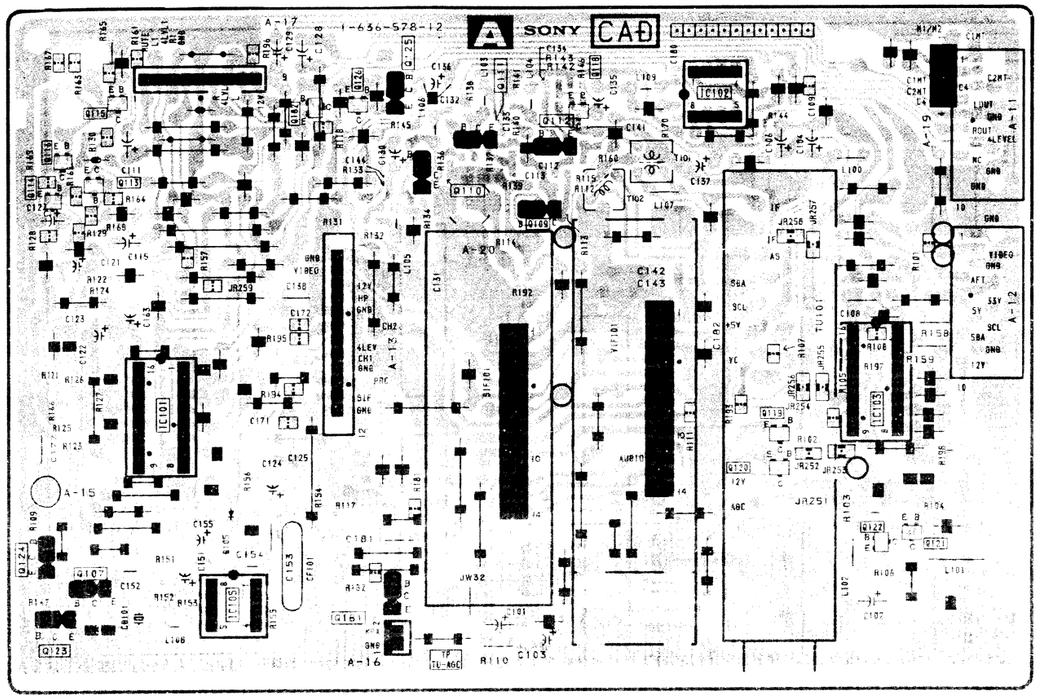

V
IC3
FCB61C65-70P
R44
R41
R49
R42
R40
R34
R35
C32
RV1
JR209
JR210
JR208
JR207
JR223
JR224
JR206
JR225
JR205
IC1
SA810162-A002
JR220
JR212
JR213
JR204
JR203
JR215
JR202
JR214
JR222
JR218
JR201
X2
JR219
R28
JR221
R27
JR217
JR216


D603
D5K-D20H
L607
6.8μH
L615
45μH
C619
1000
25V
R618
0.1
1/2W
C616
1000
25V
R622
0.1
D616
GP-08
C611
0.001
2000V
L617
10μH
L609
0.45μH
R605
0.1
1/2W
R606
0.1
1/2W
C618
2700
25V
5XE
L610
0.45μH
D606
DIOSC4M
L616
10μH
D605
DIOSC4MR
D613
R612
1.2
:FPRD
C620
4700
10V
L618
45μH
C609
0.0015
2kV
L613
1.1μH
C621
100
160V
:HR
D610
1S1555
D609
D5KC40H
C624
1000
R610
100
:FPRD
D617
1BB3
D611
1S1555
R621
100
Q604
2SC2785
R609
100
:FPRD
C613
47
16V
R619
1k
C622
0.1
50V
:PT
IC601
BM-38
C614
220
6.3V
Q603
2SC2785
G-3
4P-H
WHT
:S-MICRO
1 38V
2 NC
3 GND
4 GND
TO K BOARD
K-3
G-2
5P-H
WHT
:MINI
5 GND
4 7V
3 15V
2 GND
1 135V
TO K BOARD
K-2
G-4
3P-H
WHT
:S-MICRO
1 12V
2 OVP
3 GND
TO F1 BOARD
F1-4

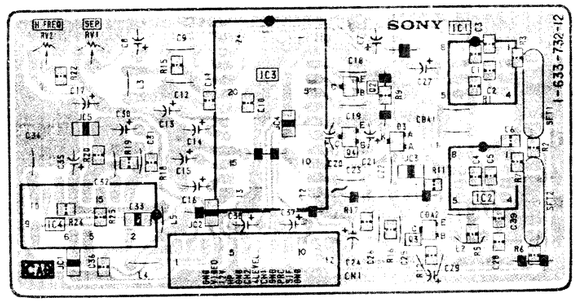
L5
100μH
:EL0606
C32
0.0047
:PT
C30
1
C31
0.01
400V
:MPS
R20
12k
:CHIP
H.
FREQ
RV2
47k
1/10W
R18
3.9k
:CHIP
R19
100k
:CHIP
R22
120k
:CHIP
R24
47k
:CHIP
C34
0.22
100V
:MPS
C35
10
C33
0.22
25V
F:3216
IC4
TDA2595
C36
120p
:CHIP
R25
15k
:CHIP
12V
C8
10
C10
150p
:CHIP
RV1
10k
1/10W
C17
10
L3
2.7mH
SN
STEREO
SEP
R15
2.7k
:CHIP
C11
120p
:CHIP
C9
0.001
:PT
C12
0.0033
100V
2%:PP
C13
47
16V
C14
47
16V
C15
47
16V
C16
47
16V
C27
1
C7
1
L1
12UH
C1
0.01
F:CHIP
CDA1
5.5MEB
R1
680
:CHIP
IC1
TBA129
SFT1
5.5MA
C2
0.01
F:CHIP
R3
560
:CHIP
C3
0.01
F:CHIP
L2
12UH
C4
0.01
F:CHIP
CDA2
5.74MEB
R5
680
:CHIP
IC2
TBA129
R2
560
:CHIP
R6
560
:CHIP
SFT2
5.74MA
C5
0.01
F:CHIP
R7
560
:CHIP
C6
0.01
F:CHIP
L4
100μH
:EL0606
IC3
TDA6600
C18
0.01
400V
:MPS
L19
0.01
400V
:MPS
C20
22
C21
22
C22
0.1
100V
:MPS
C23
0.22
100V
:MPS
C24
33
16V
C25
0.022
250V
:MPS
R16
100k
:CHIP
R17
100k
:CHIP
C26
0.047
100V
:MPS
R9
10k
:CHIP
Q2
DTC124EK
12V
C39
470p
F:3216
C28
47p
:CHIP
R11
82k
:CHIP
R13
8.2k
Q3
2SA812
Q3
1S2837
C29
1
R12
100k
:CHIP
Q4
DTC124EK
C37
47
16V
C38
47
16V
IFG
(SIF)
IFG-13
12P
TO A BOARD A-13
1 GND
2 VIDEO
3 12V
4 HP
5 GND
6 CH2
7 4_EVEL
8 CH1
9 GND
10 PRC
11 SIF
12 GND

A [TUNER, SIF, VIF] **IFG** [SIF]

— A Board —

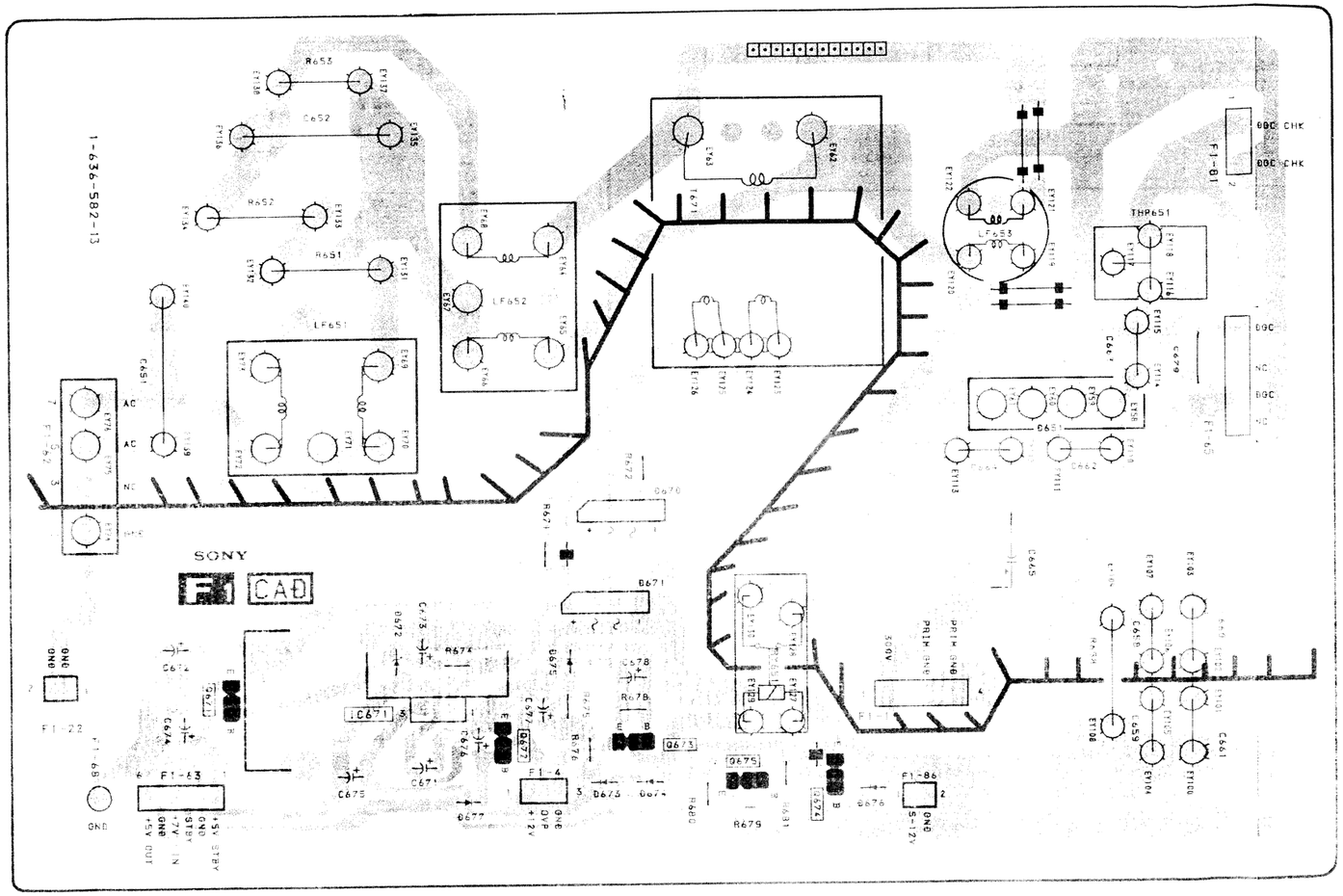


— IFG-55S Board —

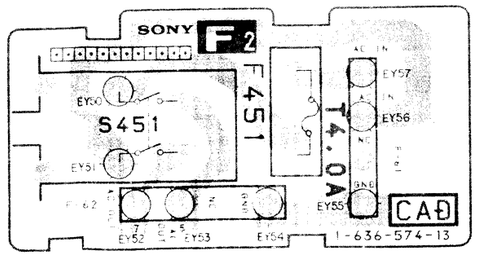


F1 [STAND-BY, POWER SUPPLY] **F2** [AC IN, POWER SW]

— F1 Board —

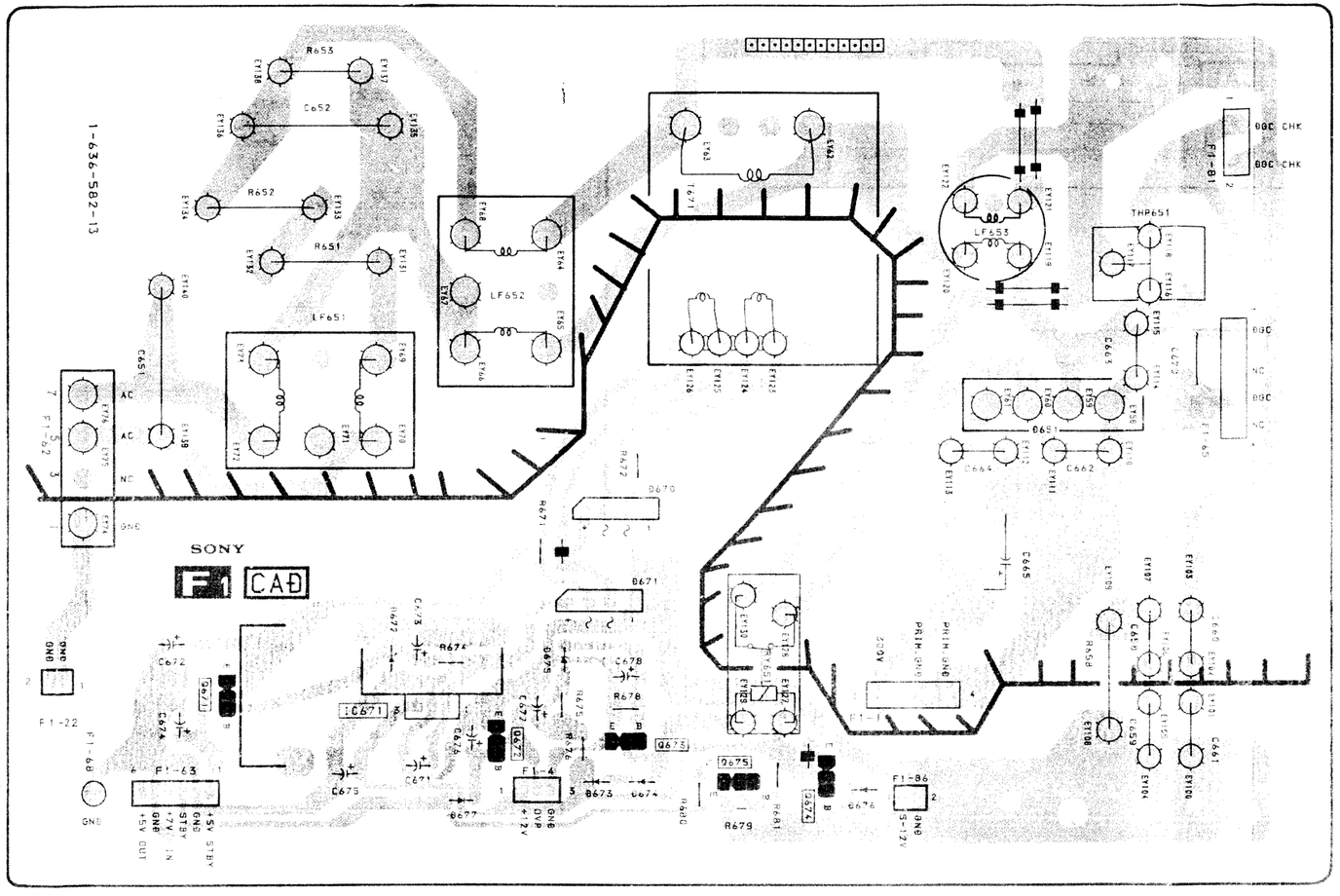


— F2 Board —

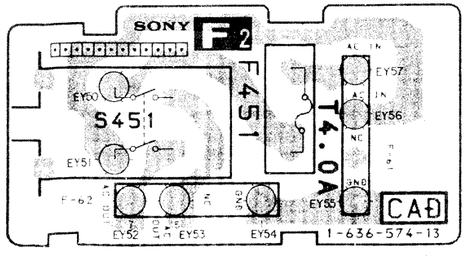


F1 [STAND-BY, POWER SUPPLY] **F2** [AC IN, POWER SW]

— F1 Board —



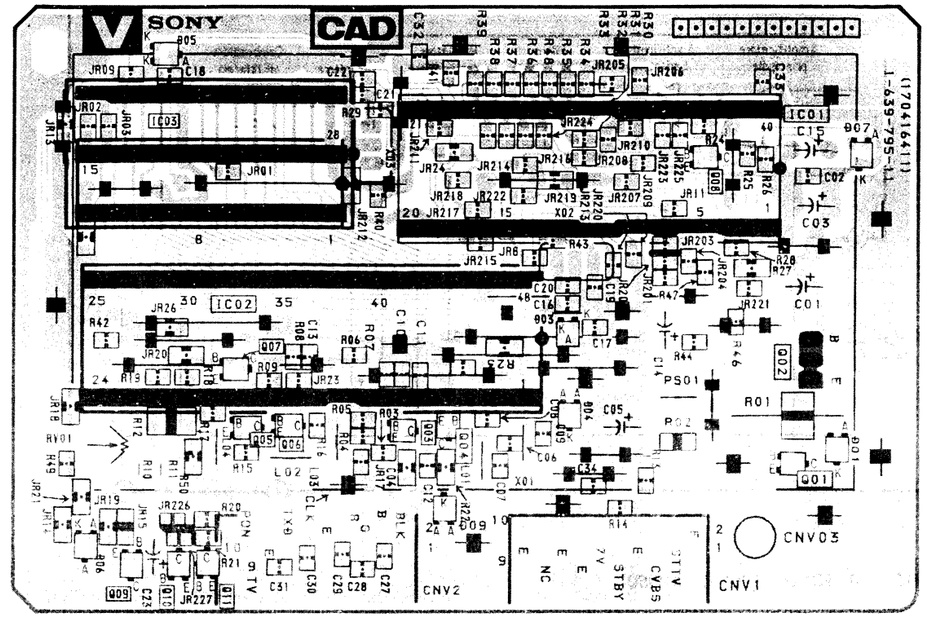
— F2 Board —



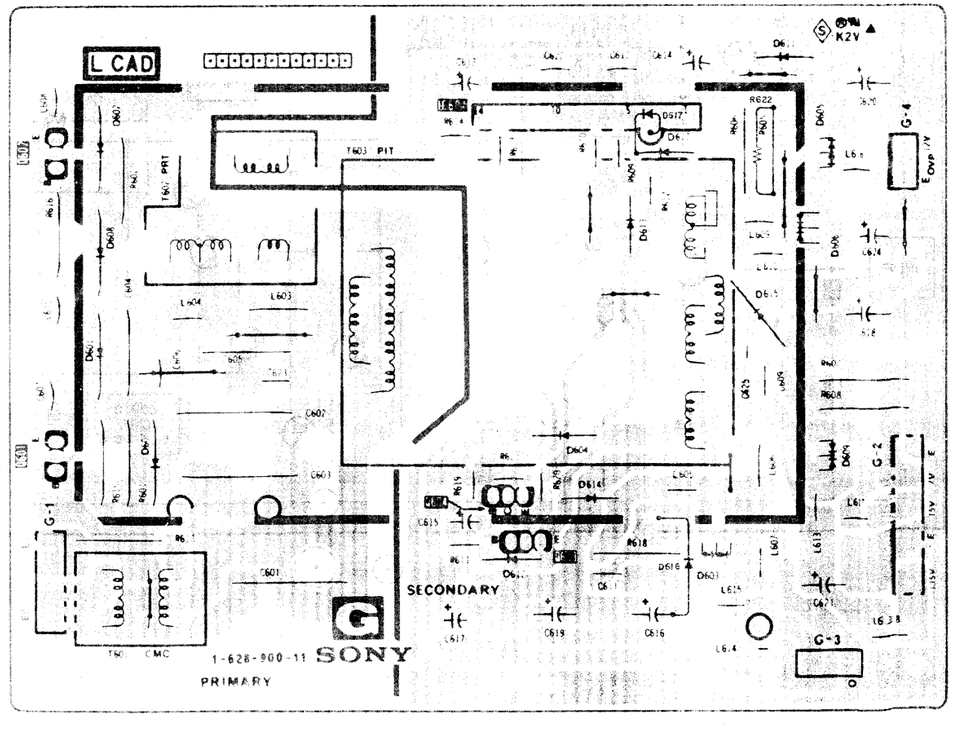
V [TEXT] **G** [POWER, REG]

- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

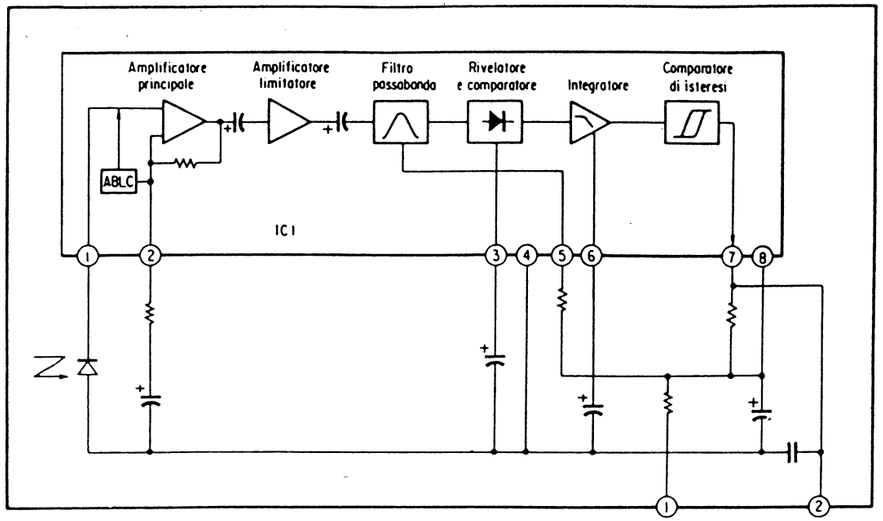
— V Board —



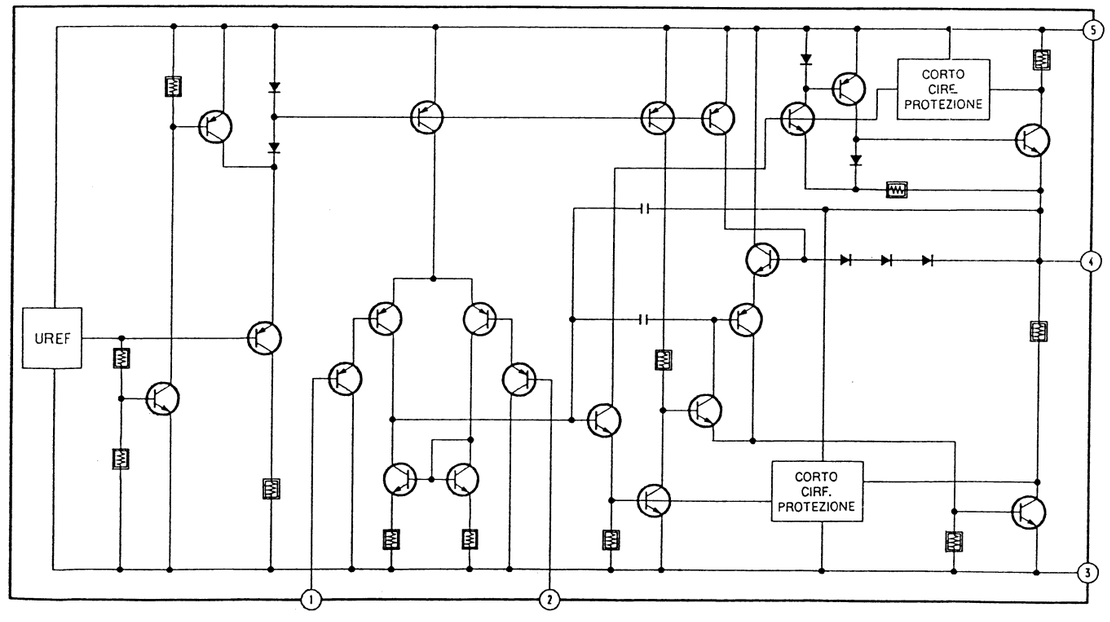
— G Board —



H2 BOARD IC951 BA1387



K BOARD IC1251/1261 TDA2050

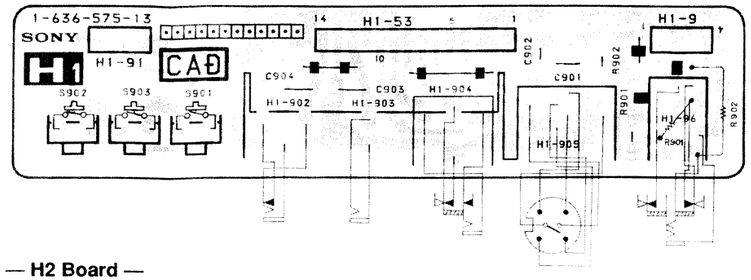


H1 [CONTROL SW, AUDIO/VIDEO IN]

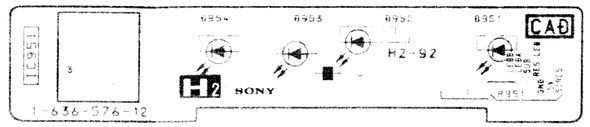
H2 [SIRCS RECEIVER, INDICATOR]

K [PROCESSOR, MEMORY, INPUT MULTPLEXER, I²C SW, PIP ENABLE AUDIO AMP L/R]

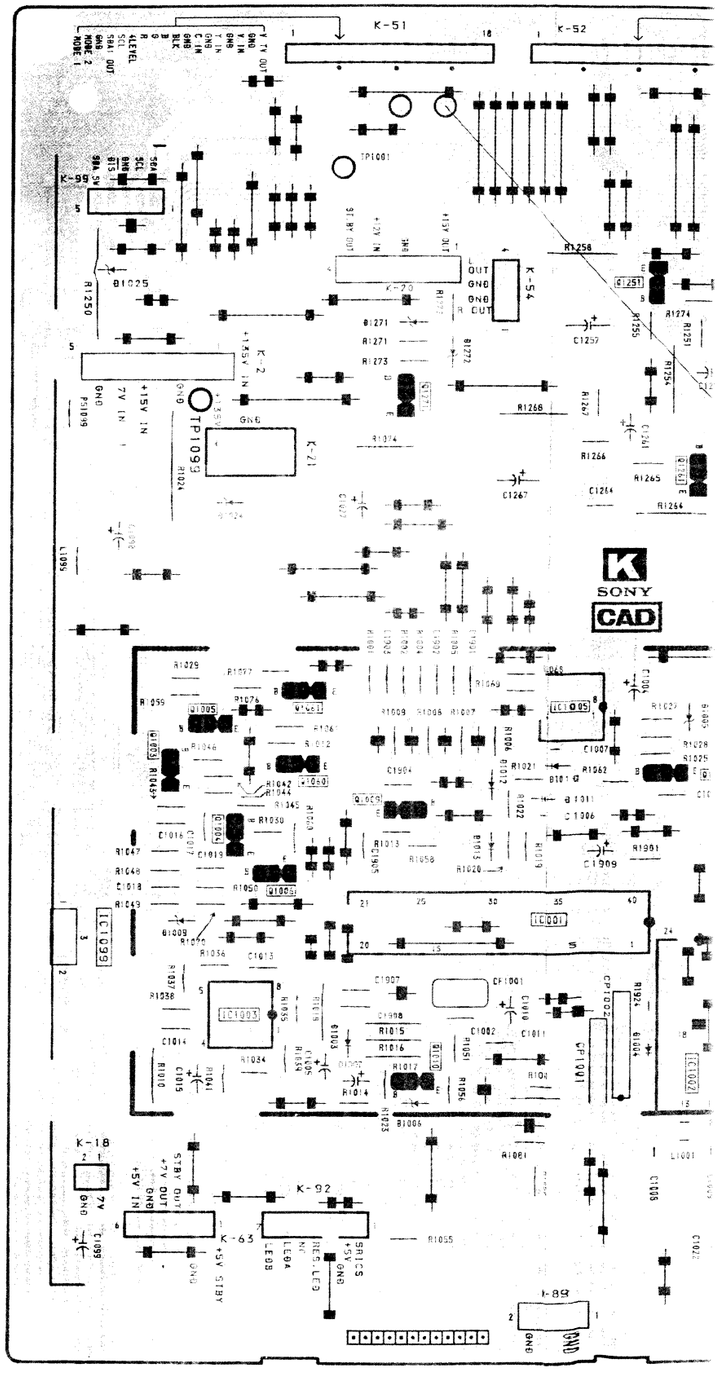
— H1 Board —



— H2 Board —



— K Board —

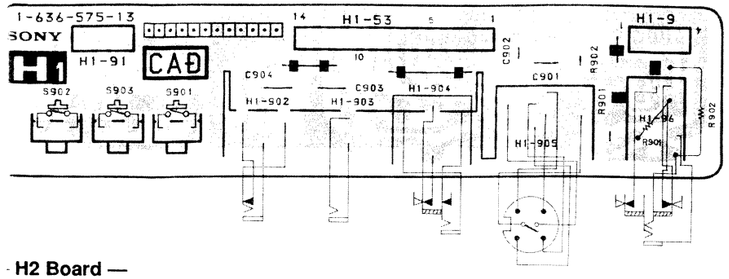


H1 [CONTROL SW, AUDIO/VIDEO IN]

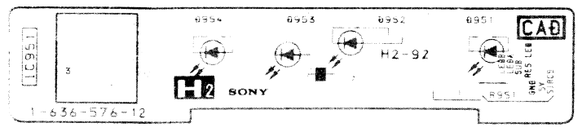
H2 [SIRCS RECEIVER, INDICATOR]

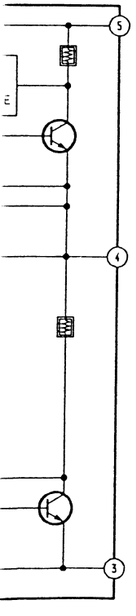
K [PROCESSOR, MEMORY, INPUT MULTPLEXER, I²C SW, PIP ENABLE AUDIO AMP L/R]

H1 Board —

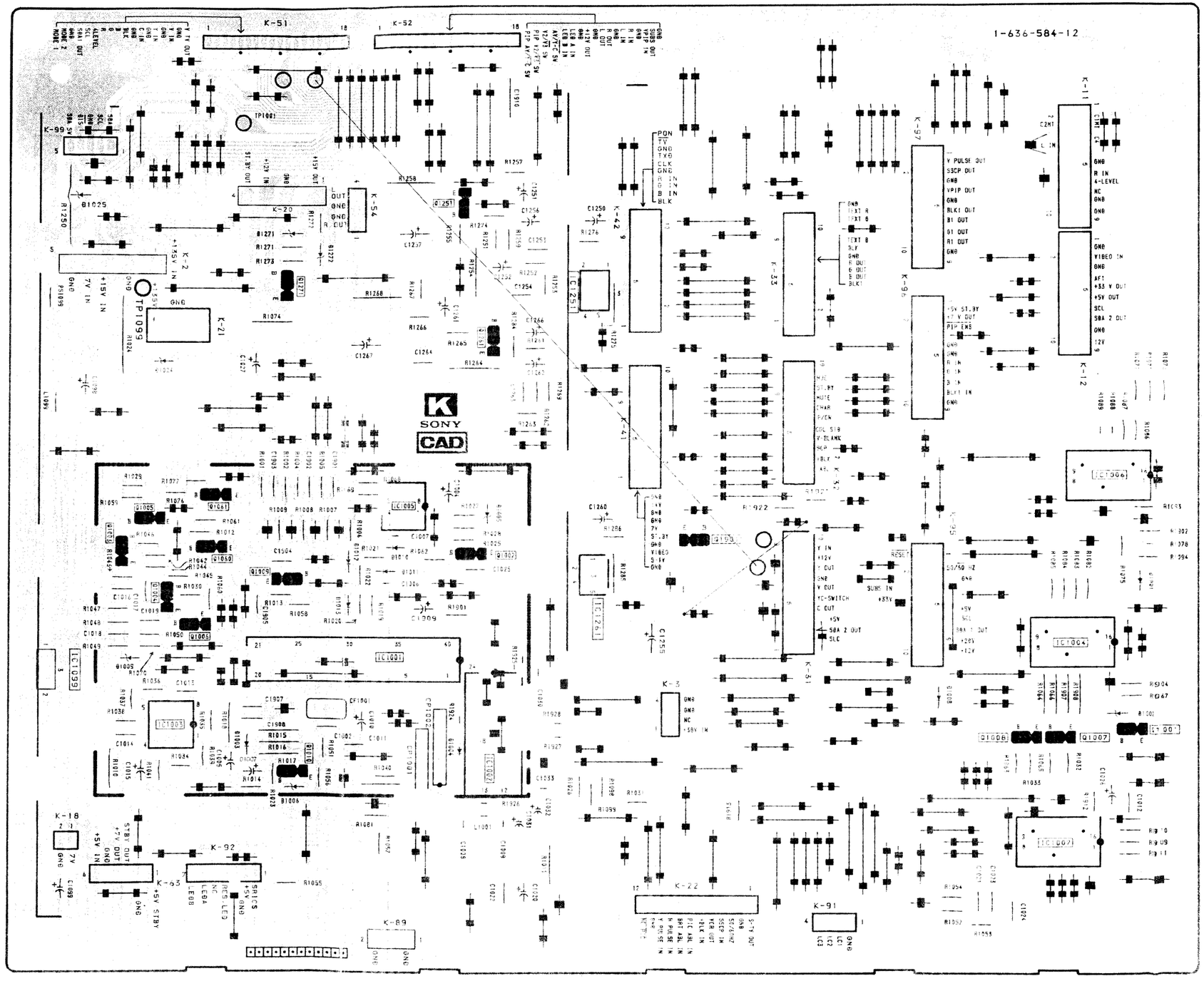


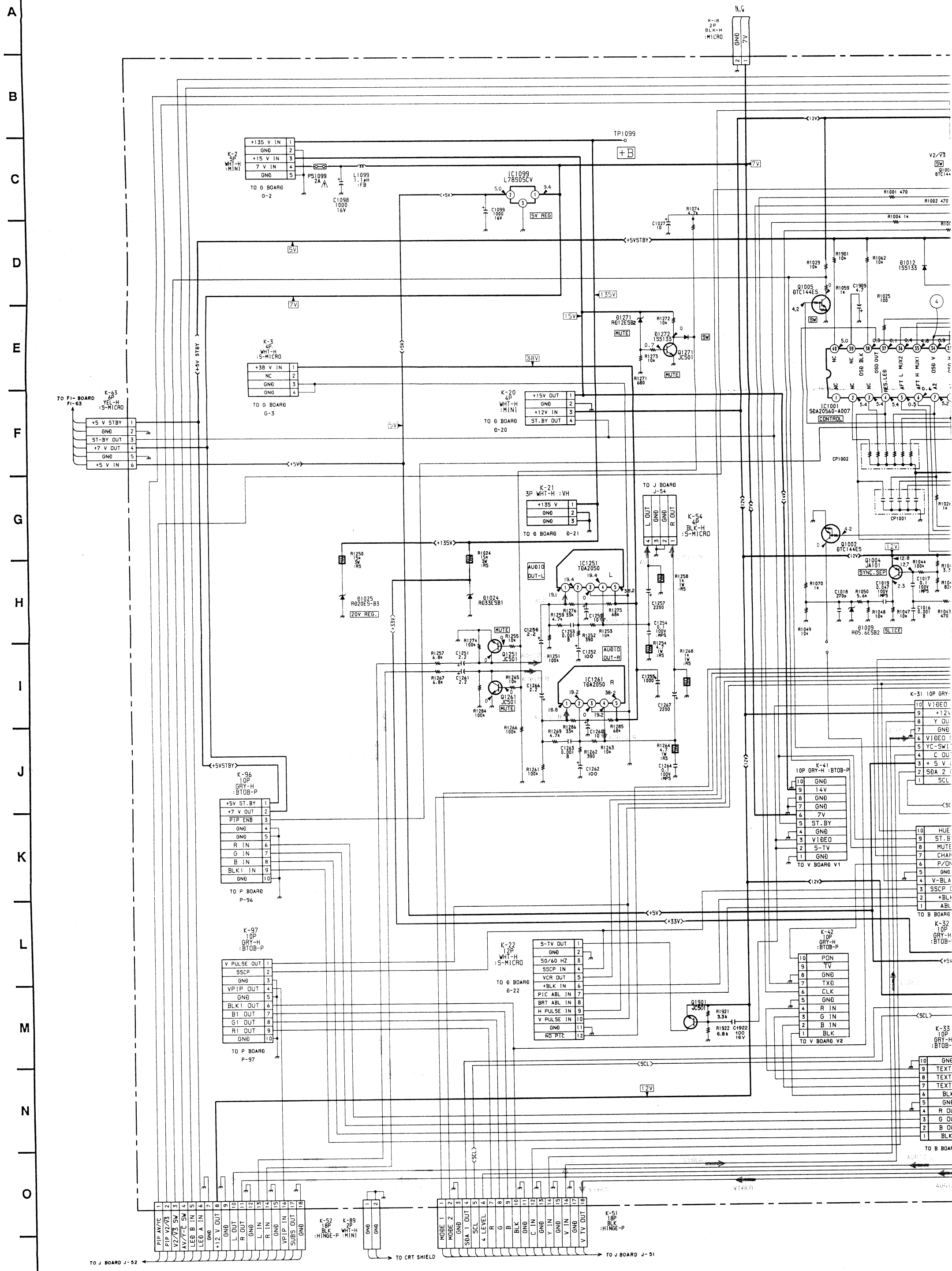
H2 Board —





— K Board —



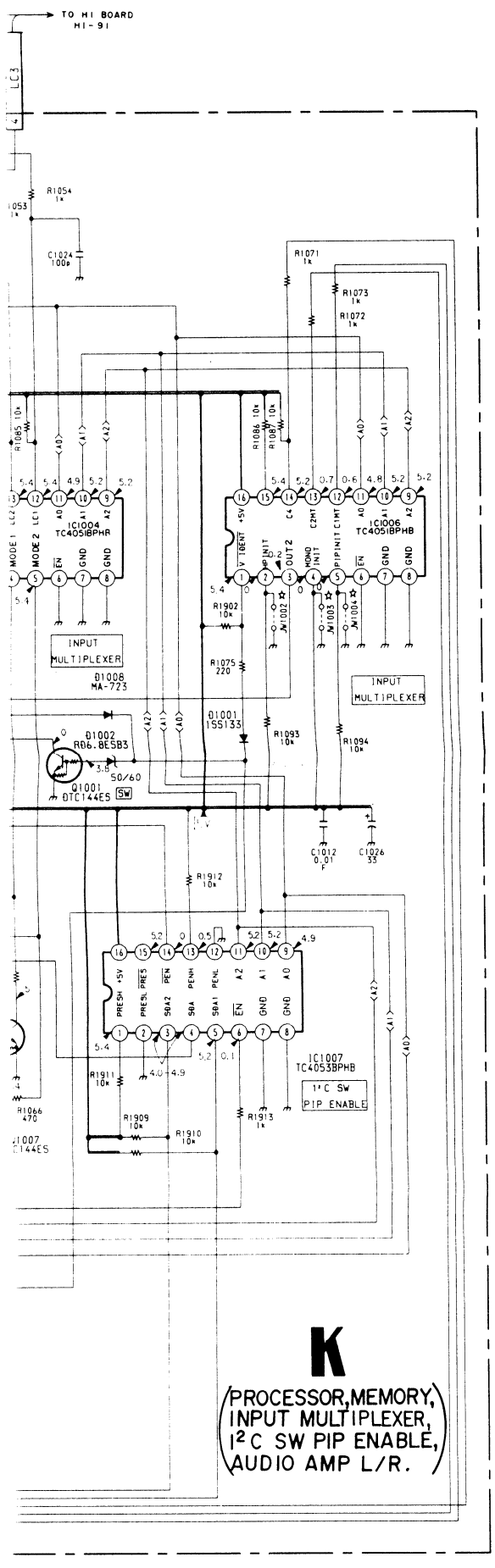

K-18 2P BLK-H :MICRO
N.C
GND
7V
TP1099
+B
K-2 5P WHT-H :MINI
+135 V IN
GND
+15 V IN
7 V IN
GND
TO G BOARD G-2
PS1099 2A
L1099 1.1μH :FB
C1098 1000 16V
IC1099 L78S05CV
5V REG
C1099 1000 16V
C1027 10
R1074 4.7k
R1001 470
R1002 470
R1004 1k
R1029 10k
R1901 10k
R1062 10k
Q1012 1SS133
Q1005 DTC144ES
R1059 1k
C1909 4.7
R1025 100
K-3 4P WHT-H :S-MICRO
+38 V IN
NC
GND
GND
TO G BOARD G-3
Q1271 RD12ESB2
MUTE
R1272 10k
Q1272 1SS133
R1273 10k
Q1271 JC501
R1271 680
K-63 6P YEL-H :S-MICRO
TO FI-BOARD FI-63
+5 V STBY
GND
ST-BY OUT
+7 V OUT
GND
+5 V IN
K-20 4P WHT-H :MINI
+15V OUT
GND
+12V IN
ST.BY OUT
TO B BOARD B-20
IC1001 S0A20560-A007
CONTROL
CP1002
CP1001
K-21 3P WHT-H :VH
+135 V
GND
GND
TO B BOARD B-21
TO J BOARD J-54
L OUT
GND
GND
R OUT
K-54 4P BLK-H :S-MICRO
Q1002 DTC144ES
Q1004 JA101
SYNC.SEP
R1044 100k
C1017 0.1 100V :MPS
C1019 0.047 100V :MPS
C1018 270p
R1050 5.6k
R1048 10k
R1047 10k
R1049 10k
R1070 1k
Q1009 RD5.6ESB2
SLICE
R1250 15k 3W :RS
R1024 15k 3W :RS
Q1025 RD20ES-B3
20V REG.
R1033ESB1
AUDIO OUT-L
IC1251 TDA2050
R1258 1k 1W :RS
C1257 2200
C1254 0.1 100V :MPS
R1254 4.7 1W :RS
R1268 1k 1W :RS
C1255 1000
C1267 2200
R1276 33k
R1259 4.7k
C1250 10
R1275 68k
C1253 0.001 B
R1252 390
R1253 10k
C1252 100
AUDIO OUT-R
C1256 2.2
R1274 100k
R1255 10k
Q1251 JC501
R1257 6.8k
C1251 2.2
R1251 100k
R1267 6.8k
C1261 2.2
R1265 10k
Q1261 JC501
C1266 2.2
R1284 100k
R1266 100k
IC1261 TDA2050 R
R1286 33k
R1269 4.7k
C1260 10
R1285 68k
C1263 0.001 B
R1262 390
R1263 10k
R1264 4.7 1W :RS
C1264 0.1 100V :MPS
R1261 100k
K-96 10P GRY-H :BTOB-P
+5V ST.BY
+7 V OUT
PIP ENB
GND
GND
R IN
G IN
B IN
BLK1 IN
GND
TO P BOARD P-96
K-97 10P GRY-H :BTOB-P
V PULSE OUT
SSCP
GND
VPIP OUT
GND
BLK1 OUT
B1 OUT
G1 OUT
R1 OUT
GND
TO P BOARD P-97
K-22 12P WHT-H :S-MICRO
S-TV OUT
GND
50/60 HZ
SSCP IN
VCR OUT
+BLK IN
PIC ABL IN
BRT ABL IN
H PULSE IN
V PULSE IN
GND
NO PTC
TO B BOARD B-22
Q1901 JC501
R1921 3.3k
R1922 6.8k
C1922 100 16V
K-42 10P GRY-H :BTOB-P
PON
TV
GND
TXD
CLK
GND
R IN
G IN
B IN
BLK
TO V BOARD V2
K-41 10P GRY-H :BTOB-P
GND
14V
GND
GND
7V
ST.BY
GND
V1DEO
S-TV
GND
TO V BOARD V1
K-31 10P GRY-
V1DEO
+12V
Y OU
GND
V1DEO
YC-SWI
C OU
+ 5 V
SDA 2
SCL
K-33 10P GRY-H :BTOB-
GND
TEXT
TEXT
TEXT
BLK
GND
R OU
G OU
B OU
BLK
TO B BOAR
K-32 10P GRY-H :BTOB-
K-52 18P BLK :HINGE-P
PIP AV/YC
PIP V2/V3
V2/V3 SW
AV/Y-C SW
LED B IN
LED A IN
GND
+12 V OUT
GND
L OUT
R OUT
GND
L IN
R IN
GND
VPIP IN
SUBS OUT
GND
TO J BOARD J-52
K-89 2P WHT-H :MINI
GND
GND
TO CRT SHIELD
K-51 18P BLK :HINGE-P
MODE 1
MODE 2
GND
SDA 1 OUT
SCL
4 LEVEL
R
G
B
BLK
GND
C IN
GND
Y IN
GND
V IN
GND
V TV OUT
TO J BOARD J-51
+5V STBY
+5V
+7V
+12V
+14V
+33V
+135V
+5VSTBY
5V
7V
12V
14V
15V
33V
38V
135V
SCL
VIDEO
AUDIO

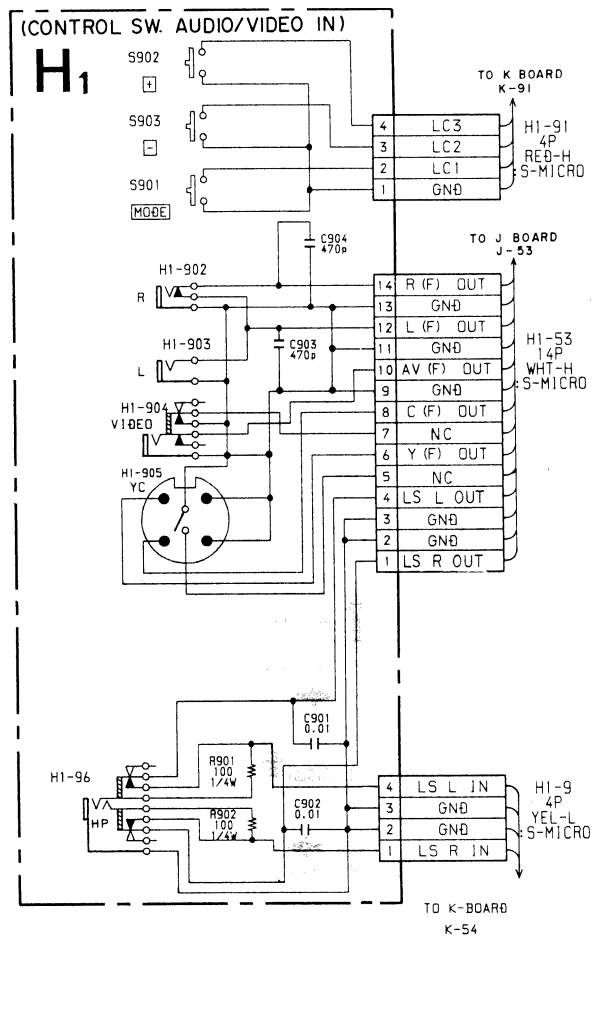
K

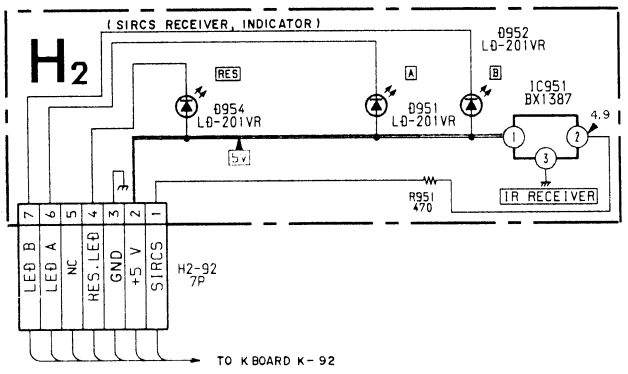
(PROCESSOR, MEMORY, INPUT MULTIPLEXER, I²C SW PIP ENABLE, AUDIO AMP L/R.)

WAVEFORMS OF BOARD K

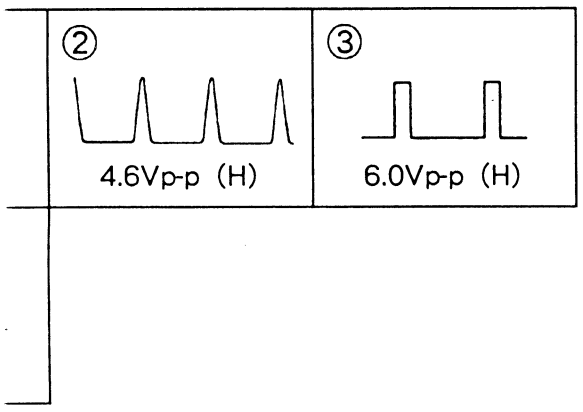
① 2.6Vp-p (H)	② 4.6Vp-p (H)	③ 6.0Vp-p (H)
④ 5.5Vp-p (H)		


TO H1 BOARD
H1-91
R1054
1k
C1024
100p
R1071
1k
R1073
1k
R1072
1k
R1085 10k
R1086 10k
R1087 10k
IC1004
TC4051BPHR
IC1006
TC4051BPHB
INPUT
MULTIPLEXER
D1008
MA-723
R1902
10k
R1075
220
D1001
1SS133
R1093
10k
R1094
10k
D1002
RD6.8ES B3
50/60
Q1001
DTC144ES
SW
C1012
0.01
F
C1026
33
R1912
10k
IC1007
TC4053BPHB
I²C SW
PIP ENABLE
R1911
10k
R1909
10k
R1910
10k
R1913
1k
R1066
470
K
PROCESSOR, MEMORY,
INPUT MULTIPLEXER,
I²C SW PIP ENABLE,
AUDIO AMP L/R.


(CONTROL SW. AUDIO/VIDEO IN)
H1
S902
S903
S901
MODE
C904
470p
C903
470p
H1-902
R
H1-903
L
H1-904
VIDEO
H1-905
YC
TO K BOARD
K-91
4 LC3
3 LC2
2 LC1
1 GND
H1-91
4P
RED-H
S-MICRO
TO J BOARD
J-53
14 R (F) OUT
13 GND
12 L (F) OUT
11 GND
10 AV (F) OUT
9 GND
8 C (F) OUT
7 NC
6 Y (F) OUT
5 NC
4 LS L OUT
3 GND
2 GND
1 LS R OUT
H1-53
14P
WHT-H
S-MICRO
C901
0.01
H1-96
R901
100
1/4W
R902
100
1/4W
C902
0.01
4 LS L IN
3 GND
2 GND
1 LS R IN
H1-9
4P
YEL-L
S-MICRO
TO K-BOARD
K-54


(SIRCS RECEIVER, INDICATOR)
H2
D952
LB-201VR
RES
A
B
D954
LB-201VR
D951
LB-201VR
IC951
BX1387
5V
R951
470
IR RECEIVER
LED B
LED A
NC
RES.LED
GND
+5 V
SIRCS
H2-92
7P
TO K BOARD K-92

OARD K

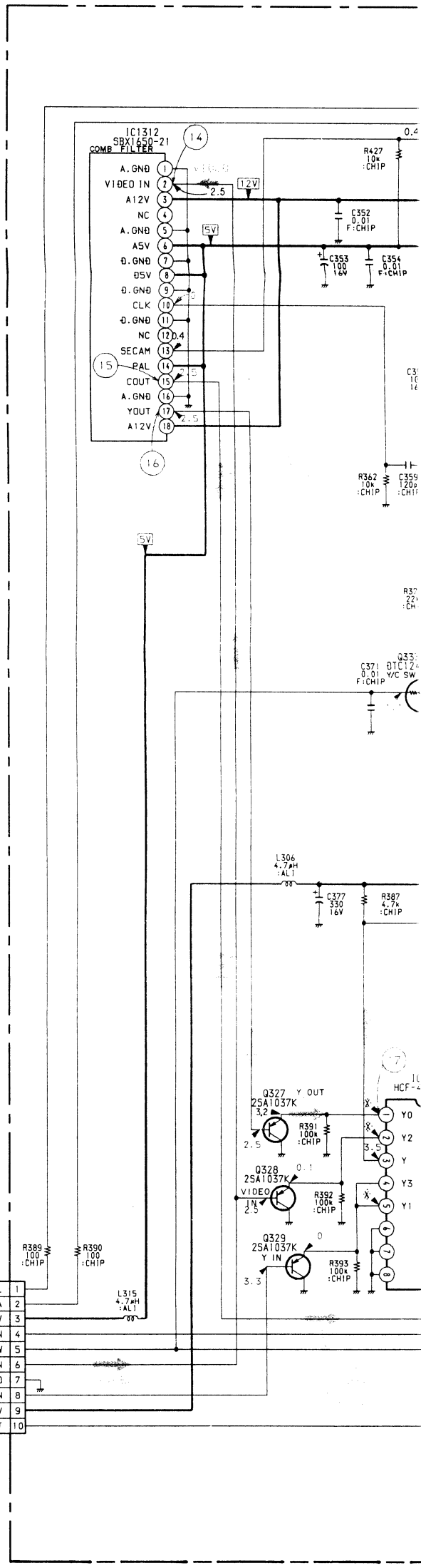

②
4.6Vp-p (H)
③
6.0Vp-p (H)

WAVEFORMS OF BOARD B

① PAL 4.2Vp-p (H)	① SECAM 4.6Vp-p (H)	① NTSC 3.58 5.0Vp-p (H)	① NTSC 4.43 4.8Vp-p (H)
② PAL 4.8Vp-p (H)	② SECAM 4.8Vp-p (H)	② NTSC 3.58 4.8Vp-p (H)	② NTSC 4.43 5.0Vp-p (H)
③ PAL 4.6Vp-p (H)	③ SECAM 5.0Vp-p (H)	③ NTSC 3.58 4.6Vp-p (H)	③ NTSC 4.43 5.0Vp-p (H)
④ PAL 10Vp-p (H)	④ NTSC 3.58/ NTSC 4.43 9Vp-p (H)	⑤ PAL 0.35Vp-p (H)	⑤ SECAM 0.35Vp-p (H)
⑤ NTSC 3.58 0.35Vp-p (H)	⑤ NTSC 4.43 0.36Vp-p (H)	⑥ PAL 1.2Vp-p (H)	⑥ SECAM/ NTSC 3.58 1.0Vp-p (H)
⑥ NTSC 4.43 1.0Vp-p (H)	⑦ PAL 1.4Vp-p (H)	⑦ SECAM/NTSC 3.58 /NTSC 4.43 1.3Vp-p (H)	⑧ PAL 0.6Vp-p (H)
⑧ SECAM 1.0Vp-p (H)	⑧ NTSC 3.58 0.5Vp-p (H)	⑧ NTSC 4.43 0.6Vp-p (H)	⑨ PAL 0.8Vp-p (H)
⑨ SECAM 1.3Vp-p (H)	⑨ NTSC 3.58/ NTSC 4.43 0.7Vp-p (H)	⑩ SECAM 0.15Vp-p (H)	⑪ SECAM 0.7Vp-p (H)
⑫ PAL 0.08Vp-p (H)	⑫ SECAM 0.1Vp-p (H)	⑫ NTSC 3.58 0.1Vp-p (H)	⑫ NTSC 4.43 0.15Vp-p (H)
⑭ PAL/NTSC 3.58/ NTSC 4.43 1.0Vp-p (H)	⑭ SECAM 1.0Vp-p (H)	⑮ PAL 0.4Vp-p (H)	⑮ NTSC 4.43 0.5Vp-p (H)
⑯ PAL 0.9Vp-p (H)	⑯ NTSC 4.43 1Vp-p (H)	⑰ PAL 0.8Vp-p (H)	⑰ NTSC 4.43 0.6Vp-p (H)
⑱ PAL 0.4Vp-p (H)	⑱ SECAM 1.0Vp-p (H)	⑱ NTSC 3.58 1.0Vp-p (H)	⑲ PAL 0.8Vp-p (H)
⑲ SECAM 0.9Vp-p (H)	⑲ NTSC 3.58 0.8Vp-p (H)	⑲ NTSC 4.43 0.9Vp-p (H)	⑳ PAL 0.4Vp-p (H)
⑳ SECAM 1.1Vp-p (H)	⑳ NTSC 3.58 0.4Vp-p (H)	⑳ NTSC 4.43 0.5Vp-p (H)	

As to the voltage volue shown by the mark ※ on the Schematic Diagram, see the another list.

IC • NO
IC301
IC304



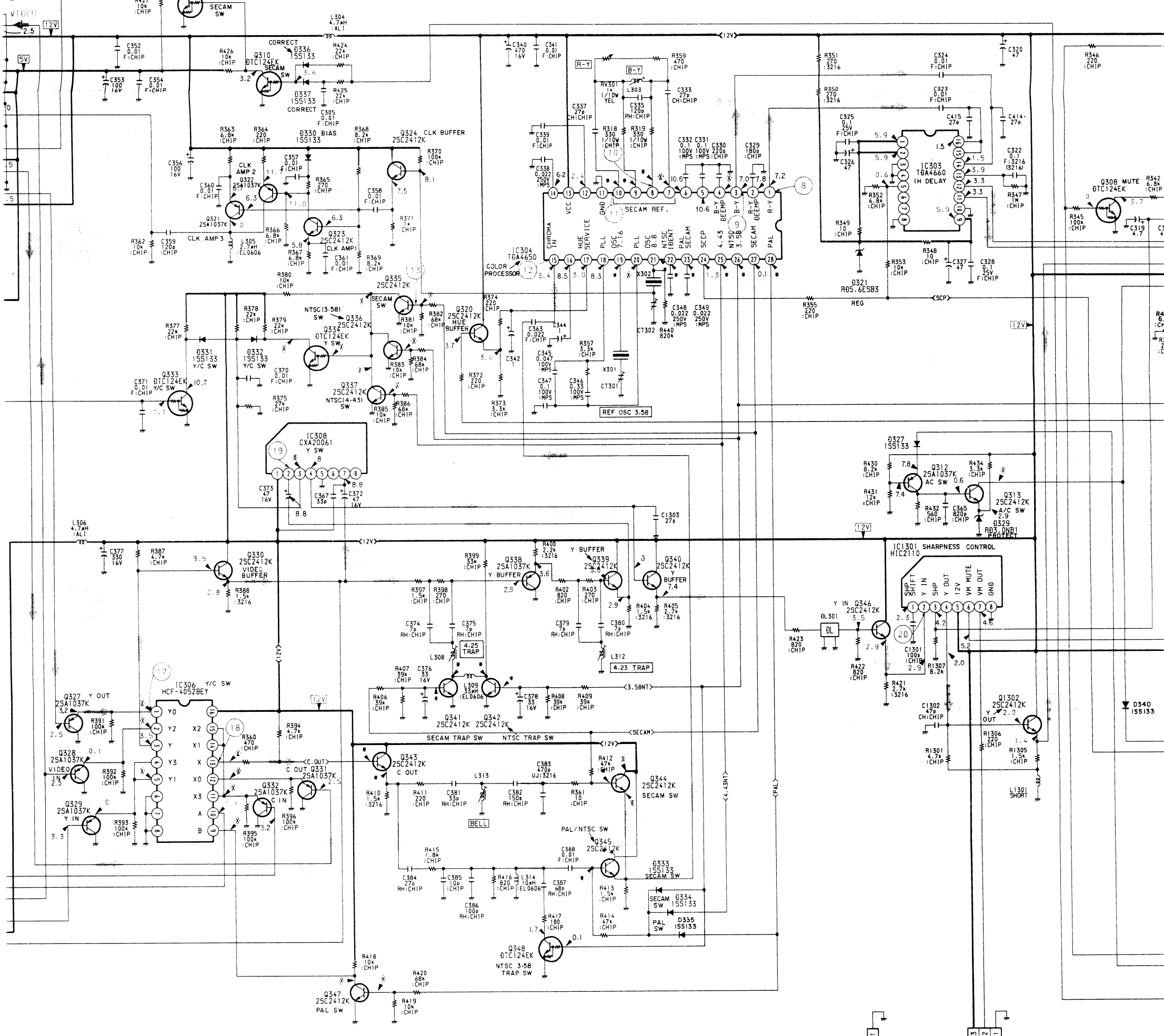
mark ※ on the
t.

IC • NO	PIN • NO	PAL	SECAM	NTSC 3.58	NTSC 4.43
IC301	①	3.6	3.7	3.4	3.5
	②	5.7	5.7	5.9	5.7
	③	4.4	4.3	4.1	4.2
	⑤	4.7	4.7	4.5	4.6
	⑥	0.1	0.1	6.1	0.1
	⑪	8.5	0	0	0
	⑭	8.5	8.5	8.4	0
	⑬	3.8	3.6	3.5	3.5
	㉖	5.6	5.8	4.3	4.3
IC304	④	7.8	7.6	7.8	7.8
	⑦	5.3	3.7	5	4.9
	⑧	4.3	3.1	4.2	4
	⑨	4.3	3.1	4.2	4
	⑩	5.3	3.7	5	4.9
	⑲	3.5	4.7	2.5	3.3
	⑳	8.3	3.3	8.3	8.3
	㉑	2.4	3.3	3	2.5

IC • NO	PIN • NO	PAL	SECAM	NTSC 3.58	NTSC 4.43
IC304	㉒	6	6	7.7	7.7
	㉓	8	7.6	5.9	5.9
	㉔	0.1	0.1	0.1	6.2
	㉕	0.1	0.1	6.1	0.1
	㉘	6.2	0.1	0.1	0.1
IC305	①	3.3	0.1	0.2	0
	②	0	3.2	3.2	3.2
	④	0	0.1	0.2	0
	⑤	0	0.1	0.2	0
	⑨	0.1	12.4	12.4	0.1
	⑪	0	3.9	3.9	3.9
	⑫	3.2	0.1	3.2	0
	⑬	3.4	4.1	3.4	4.1
	⑭	0	3.9	3.9	3.9
	㉕	0	3.9	3.9	3.9
IC308	③	0.6	6.9	6.9	6.9

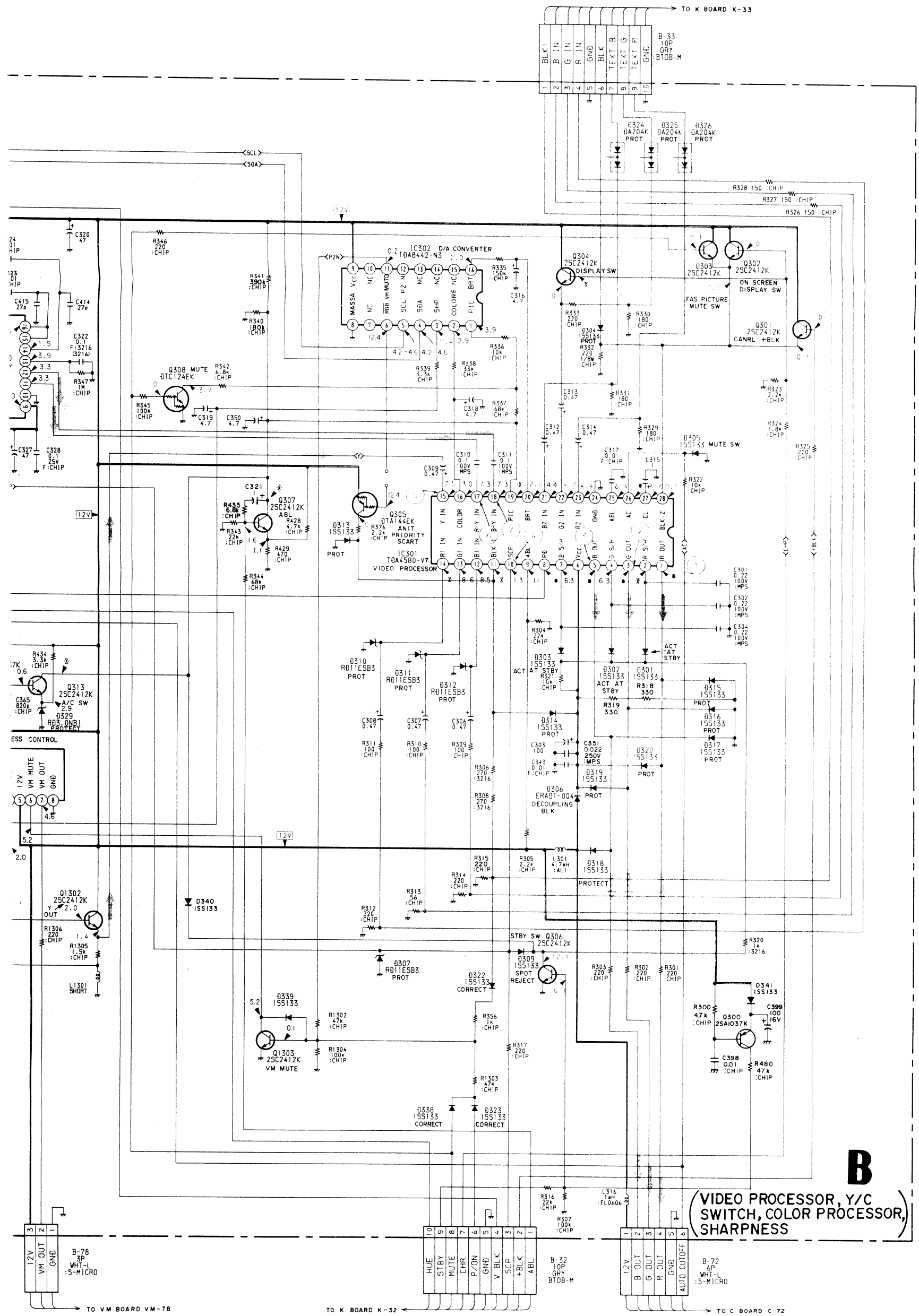
Q • NO		PAL	SECAM	NTSC 3.58	NTSC 4.43
Q304	B	0.1	0.8	0.1	0.1
Q307	C	3.8	3.8	3.8	3.5
Q313	C	3.8	3.8	3.8	3.5
Q334	B	1.2	0.1	0.1	0.1
	C	10.6	12.4	12.4	12.4
Q335	B	0	0.7	0	0
	C	8.6	0.1	8.6	8.6
Q336	B	0	0	0.7	0
Q337	B	0	0	0	0.7
	C	8.6	8.6	8.6	0.1
Q341	B	0	0.7	0	0
	C	12.4	0	12.4	12.4
Q342	B	0	0	0.7	0
	C	12.4	12.4	0	12.4
Q343	B	4.3	4.8	4.8	4.8
	E	3.6	3.6	4.2	4.2

Q • NO		PAL	S
Q344	B	0.1	
	E	4.3	
Q345	B	5	
	E	4.3	
	C	12.4	
Q347	B	0.7	
	C	0.1	



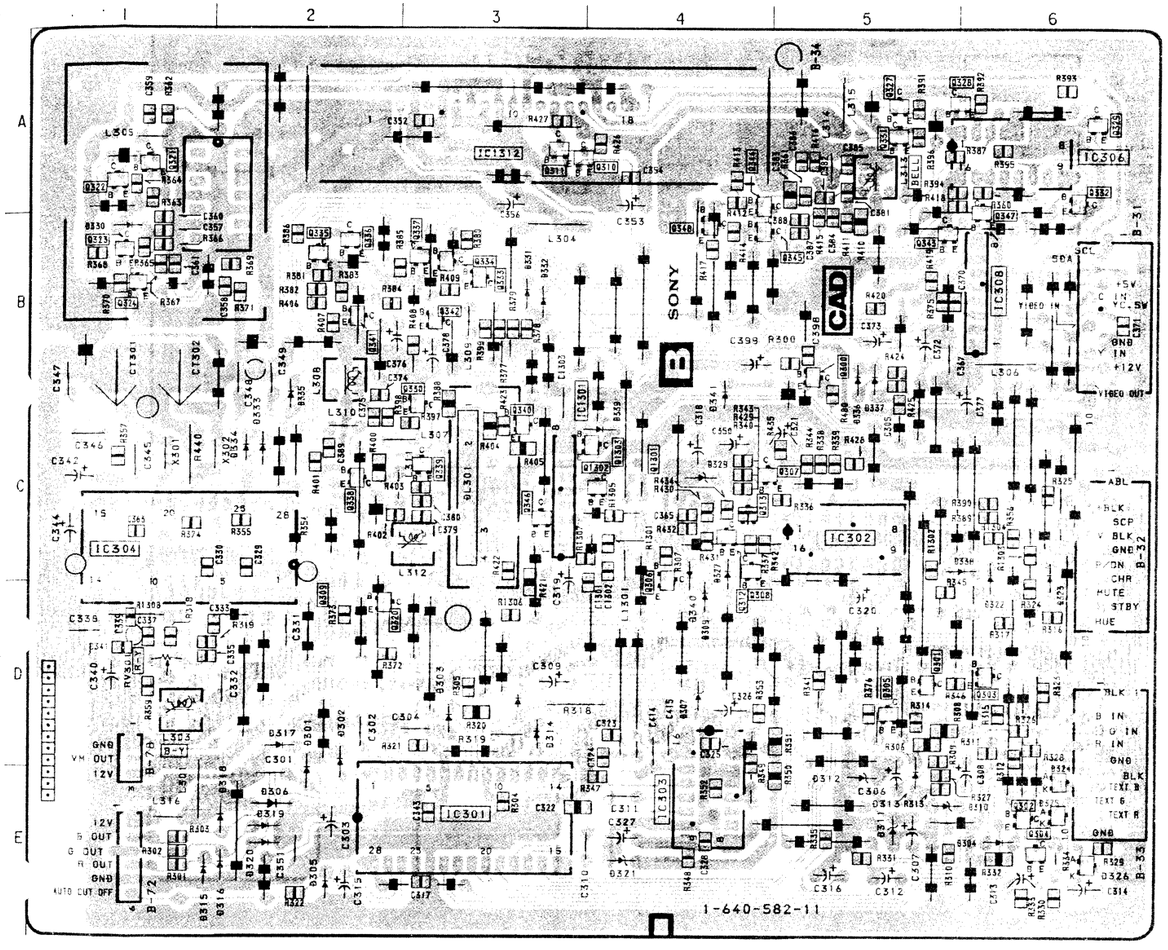
SC	NTSC
8	4.43
1	0.1
9	3.5
3	3.5
1	0.1
4	12.4
	0
5	8.6
	0
	0.7
	0.1
	0
4	12.4
	0
	12.4
	4.8
	4.2

Q • NO		PAL	SECAM	NTSC 3.58	NTSC 4.43
Q344	B	0.1	5.3	0.1	0.1
	E	4.3	4.6	4.3	4.3
Q345	B	5	0.1	4.9	5
	E	4.3	4.6	4.3	4.3
	C	12.4	10.2	12.4	12.4
Q347	B	0.7	0	0	0
	C	0.1	0.1	12.4	12.4

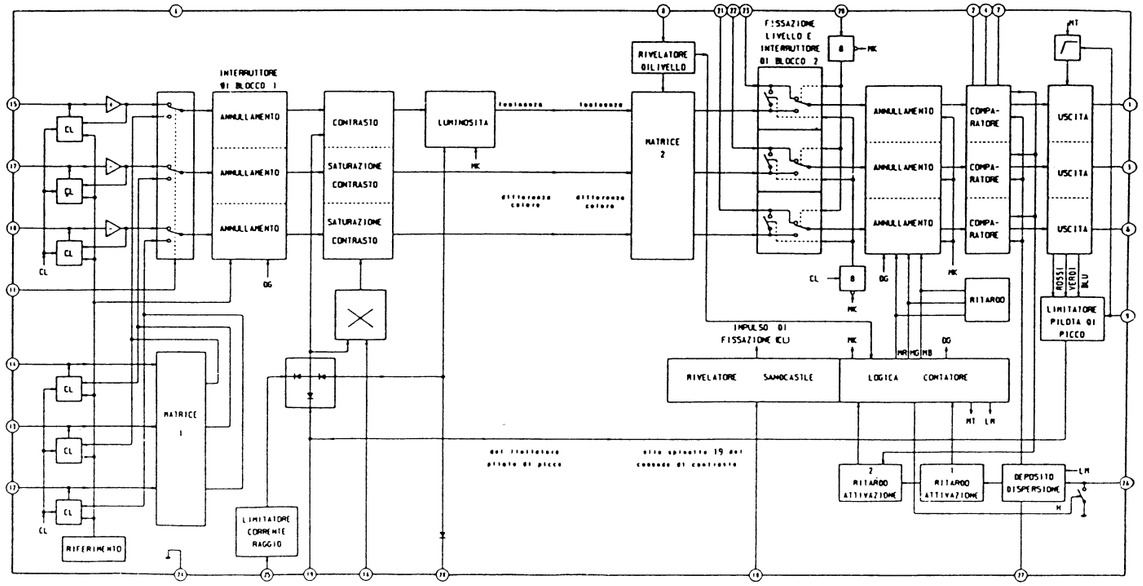


B VIDEO PROCESSOR, Y/C SWITCH COLOR PROCESSOR, SHARPNESS CONTROL

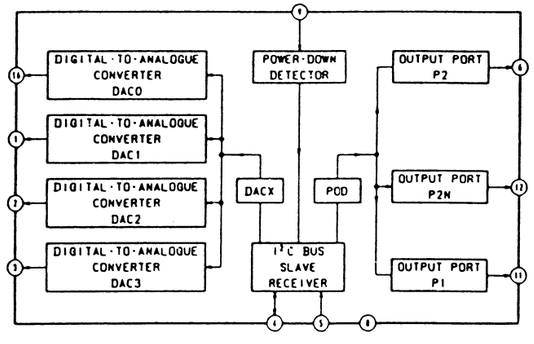
— B Board —



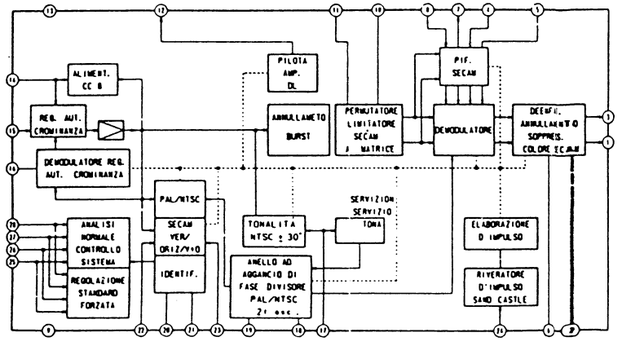
B BOARD IC301 TDA4580-V6



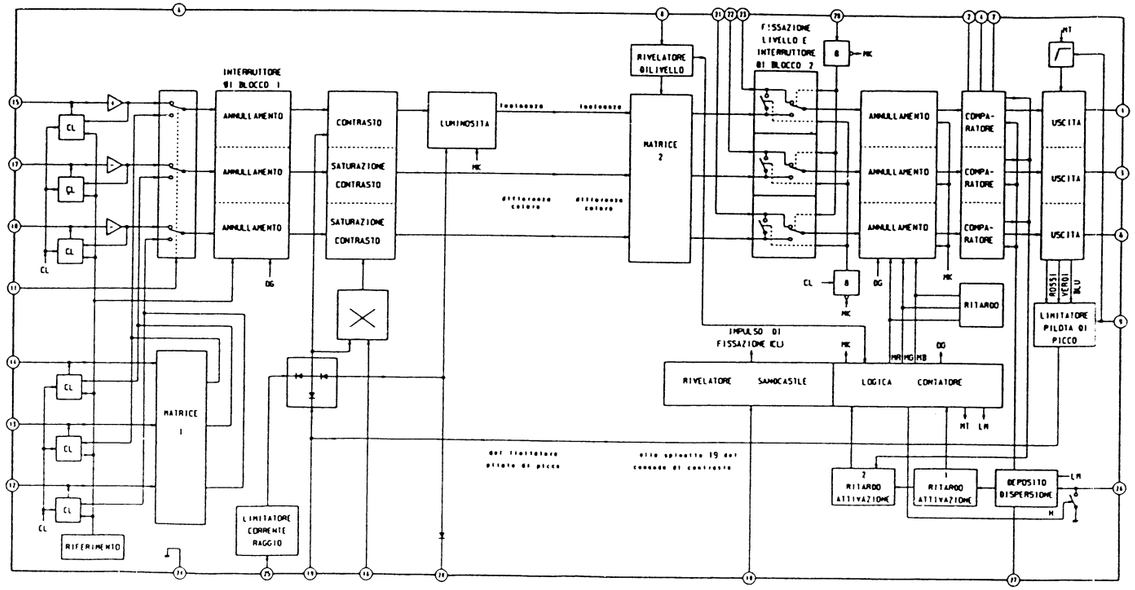
B BOARD IC302 TDA8442-N3



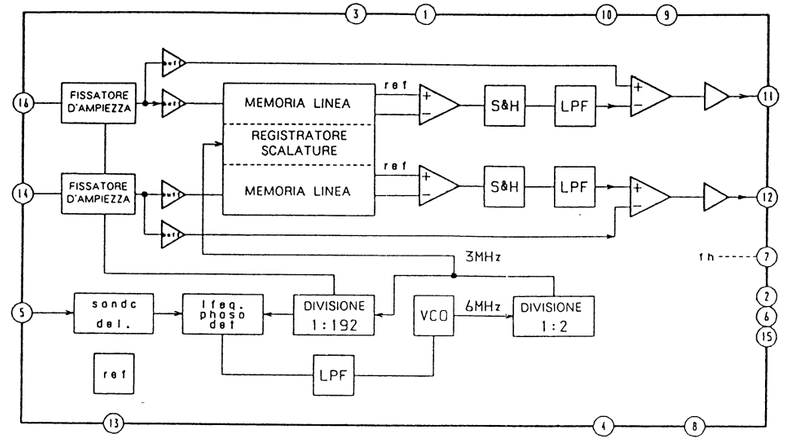
B BOARD IC303 TDA4660



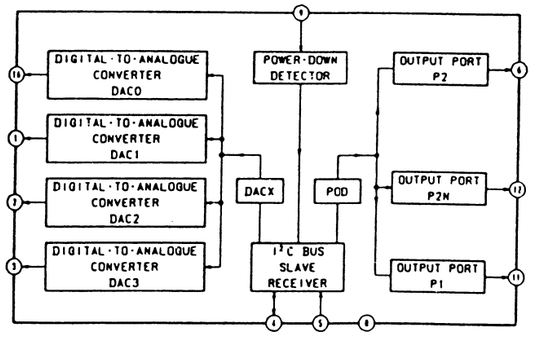
B BOARD IC301 TDA4580-V6



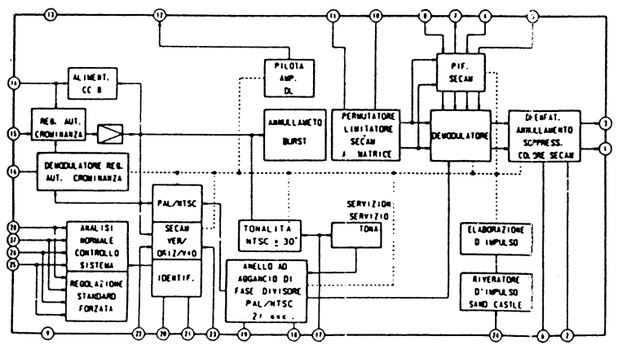
B BOARD IC304 TDA4650



B BOARD IC302 TDA8442-N3

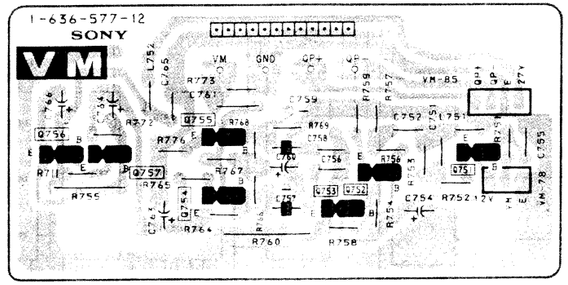


B BOARD IC303 TDA4660

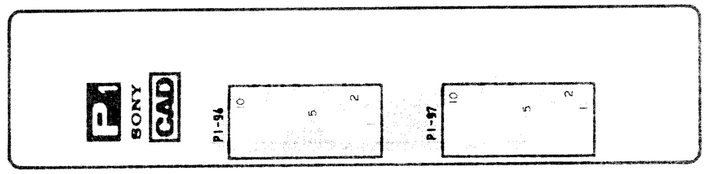


VM [VM AMP] P1

— VM Board —

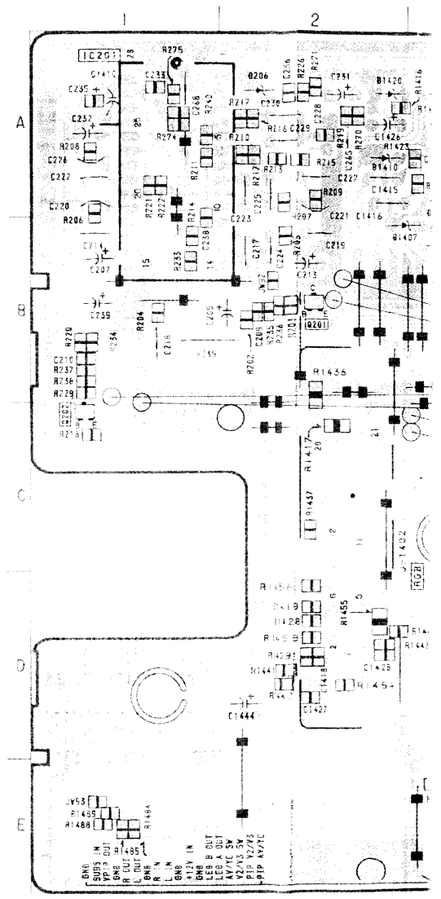


— P1 Board —



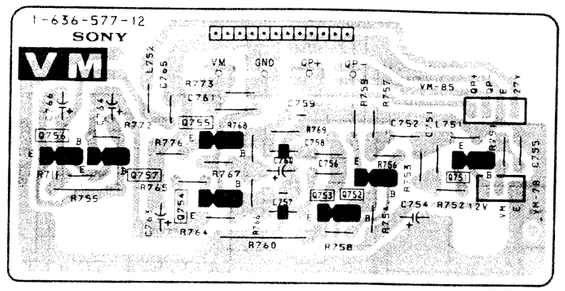
J [AUDIO CONTROL, AUDIO SW, AUDIO/V SW, COMPOSITE Y/C SW

— J Board —

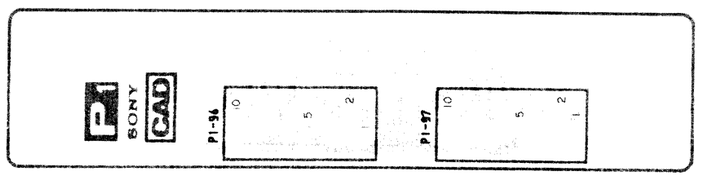


VM [VM AMP] P1

— VM Board —

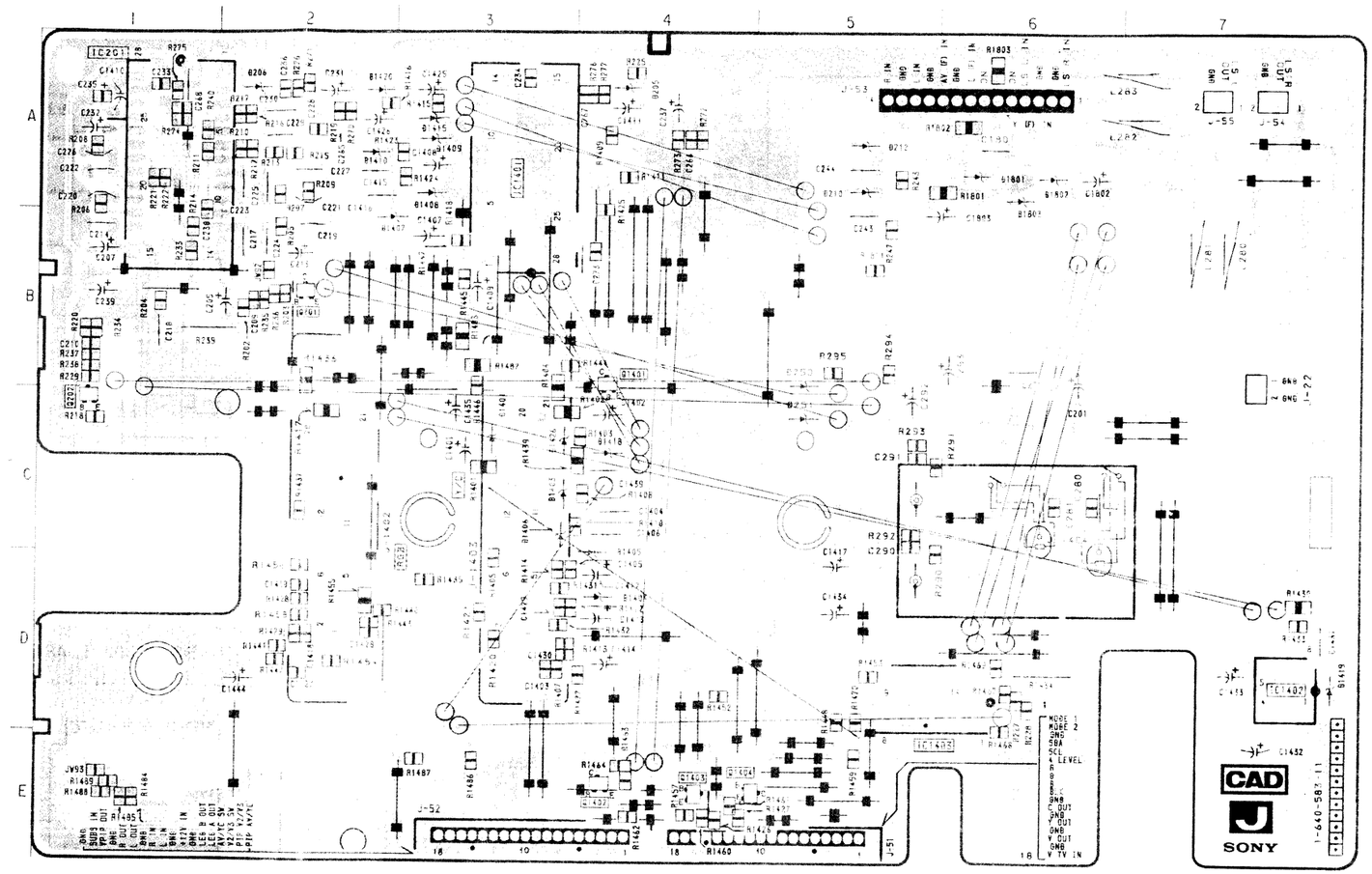


— P1 Board —

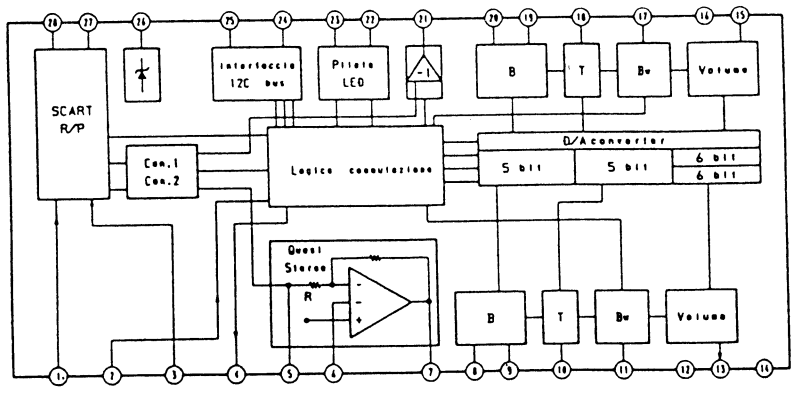


J [AUDIO CONTROL, AUDIO SW, AUDIO/VIDEO SW, PIN SW, COMPOSITE Y/C SW]

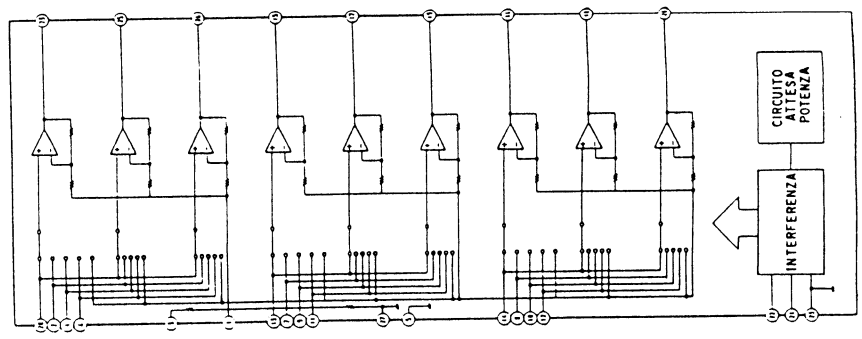
— J Board —



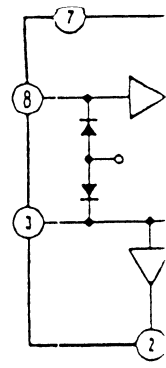
J BOARD IC201 TDA6200



J BOARD IC1401 CXA1114P



J BOARD IC



TO SPEAKERS

RIGHT

LEFT

J-54 2P REG-L :S-MICRO

J-55 2P WHT-L :S-MICRO

J-53 14P WHT-L :S-MICRO

TO HI BOARD HI-53

J-1404

VARIABLE OUT L R

L281 5uH

L282 5uH

L283 5uH

L280 5uH

C281 0.022 :CHIP

C280 0.022 :CHIP

R290 470 :CHIP

R291 470 :CHIP

R292 10k :CHIP

R293 10k :CHIP

C293 2.2 50V

C292 2.2 50V

R295 470 :CHIP

R294 470 :CHIP

C290 0.01 B:CHIP

C291 0.01 B:CHIP

D250 RD7.5ESB3 PROTECT

D251 RD7.5ESB3 PROTECT

C1801 0.01 400V :MPS

C1802 47 50V

C1803 47 50V

R1802 82 1/8W :3216

R1803 82 1/8W :3216

R1801 82 1/8W :3216

D1801 RD7.5ESB3 PROTECT

D1802 RD7.5ESB3 PROTECT

D1803 RD7.5ESB3 PROTECT

R1811 220 :CHIP

C243 0.22 100V :MPS

C244 0.22 100V :MPS

R247 47k :CHIP

R243 47k :CHIP

D210 RD7.5ESB3 PROTECT

D212 RD7.5ESB3 PROTECT

R218 220 :CHIP

R214 220 :CHIP

AUDIO AMP-1

Q201 2SC2712-G

R236 18k :CHIP

R235 56k :CHIP

R202 5.6k :CHIP

R203 12k :CHIP

AUDIO AMP-2

Q202 2SC2712-G

R238 18k :CHIP

R237 56k :CHIP

R229 12k :CHIP

R220 5.6k :CHIP

C209 0.0056 B:CHIP

C210 0.0056 B:CHIP

R234 2.2k :CHIP

R233 2.2k :CHIP

C205 4.7

C207 4.7

C213 22

C214 0.0068 400V :MPS

C217 0.0068 400V :MPS

C218 0.022 250V :MPS

C219 0.022 250V :MPS

C220 0.0033 100V :PT

C221 0.0033 100V :PT

C222 0.056 100V :MPS

C223 0.056 100V :MPS

C224 0.01 400V :MPS

C225 0.47 :MPS

C226 0.47 :MPS

C227 0.022 250V :MPS

R205 3.3k :CHIP

R207 3.3k :CHIP

R204 33k :CHIP

R206 3.3k :CHIP

R208 15k :CHIP

R209 22k :CHIP

R210 15k :CHIP

R211 100k :CHIP

R212 22k :CHIP

IC201 TDA6200

LOUT BCUP ROUT GND EXP TRE BASS BASS LBASS LED2 QOUT VCC EXP TRE BASS BASS LBASS LED2

MAIN SOUND CONTROLLER

C239 470 16V

R239 10 1/4W

12V

L201 330uH

C201 470 16V

C1435 220 16V

C1401 220 16V

C1402 470 16V

R1401 82 1/8W :CHIP

R1402 68 1/8W :CHIP

R1403 47k :CHIP

D1401 RD7.5ESB3 PROTECT

R1439 82 1/8W :CHIP

C1439 0.01 400V :MPS

D1426 RD7.5ESB3 PROTECT

R1405 10k :CHIP

R1407 470k :CHIP

C1404 0.22 100V :MPS

D1403 RD7.5ESB3 PROTECT

R1421 470 :CHIP

R1431 470 :CHIP

C1403 330p B:CHIP

R1408 47k :CHIP

R1409 470 :CHIP

C1412 47

R1432 470 :CHIP

R1420 470 :CHIP

C1413 47

C1406 0.22 100V :MPS

R1411 470 :CHIP

R1410 47k :CHIP

R1412 47k :CHIP

C1429 0.0047 F:CHIP

R1413 470k :CHIP

C1430 330p B:CHIP

R1414 47k :CHIP

C1405 0.0047 F:CHIP

D1404 RD7.5ESB3 PROTECT

D1405 RD7.5ESB3 PROTECT

D1406 RD7.5ESB3 PROTECT

R1404 150 1/8W :CHIP

D1418 RD7.5ESB3 PROTECT

Q1401 2SA1162-G

VIDEO OUT BUFFER 1

GND 21
V IN 20
V OUT 19
GND 18
GND 17
BLK 16
COLOUR IN 15
14
GND 13
12
11
10
GND 9
MODE 8
7
L IN 6
GND 5
GND 4
L OUT 3
R IN 2
R OUT 1

J-1403 21P SCART Y/C

3

R1452 1k :CHIP

R1453 1k :CHIP

IC1403 HD14053BP

MAIN VIDEO Y/C-SW

R1470 100 :CHIP

R1484 10k :CHIP

R1467 100 :CHIP

R1485 10k :CHIP

R1469 100 :CHIP

R1468 100 :CHIP

R1486 10k :CHIP

R1487 4.7k :CHIP

R1488 4.7k :CHIP

R1489 4.7k :CHIP

12V

J

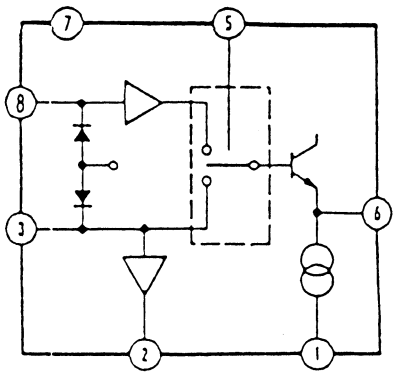
(AUDIO CONTROL, AUDIO SW
AUDIO/VIDEO SW, PIP SW
COMPOSITE Y/C SW)

GND 18
NC 17
NC 16
GND 15
R OUT 14
L OUT 13
GND 12
R IN 11
L IN 10
GND 9
+12V IN 8
GND 7
LED A OUT 6
LED B OUT 5
AV/YC SW 4
V2/V3 SW 3
NC 2
NC 1

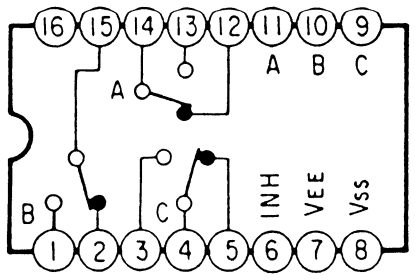
J-52 18P BLK :HINGE-S

TO K BOARD K-52

J BOARD IC1402 TEA2014A



J BOARD IC1403 HD14053BP



CIRCUITO ATTESA POTENZA

INTERFERENZA

VM-85
4P
BLK-H
:S-MICRO

28V 4
GND 3
Q.P.- 2
Q.P.+ 1

TO D BOARD D-85

GND
VM
QP-
QP+

NECK ASSY
QUAD POLE

Q.P.-
Q.P.+
GND
VM

IC201 TDA6200

MAIN SOUND CONTROLLER

IC1401 SOURCE SELECT

IC1401 CXA1114P

VIDEO OUT CLAMP

IC1402 TEA2014A

9V REG.

PROTECT

J-1402
21P
SCART
RGB

Q1401 2SA1162-G
VIDEO OUT BUFFER 1

Q1402 2SC2712-G
VIDEO OUT BUFFER 2

Q1403 2SC2712-G
Y-OUT BUFFER

Q1404 2SA1162-G
COLOUR OUT BUFFER

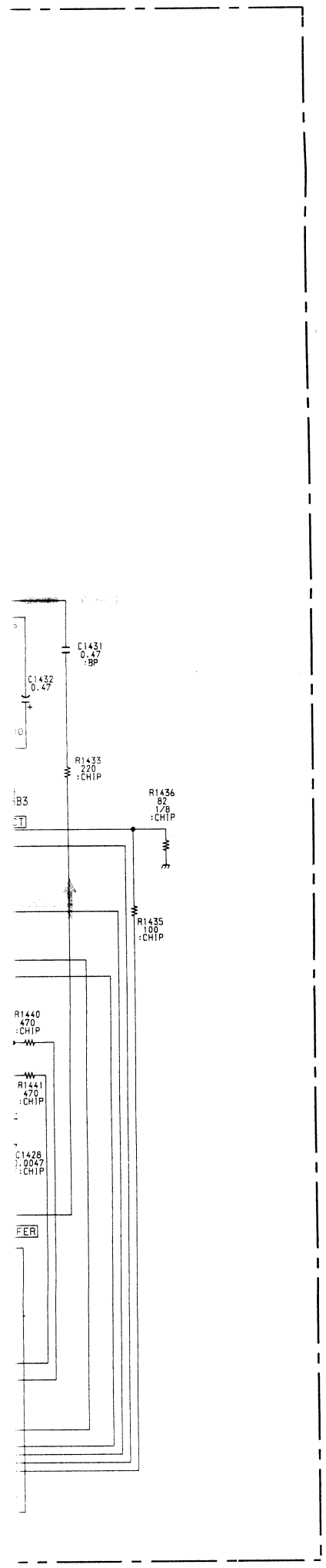
J-51
18P
BLK
:HINGE-S

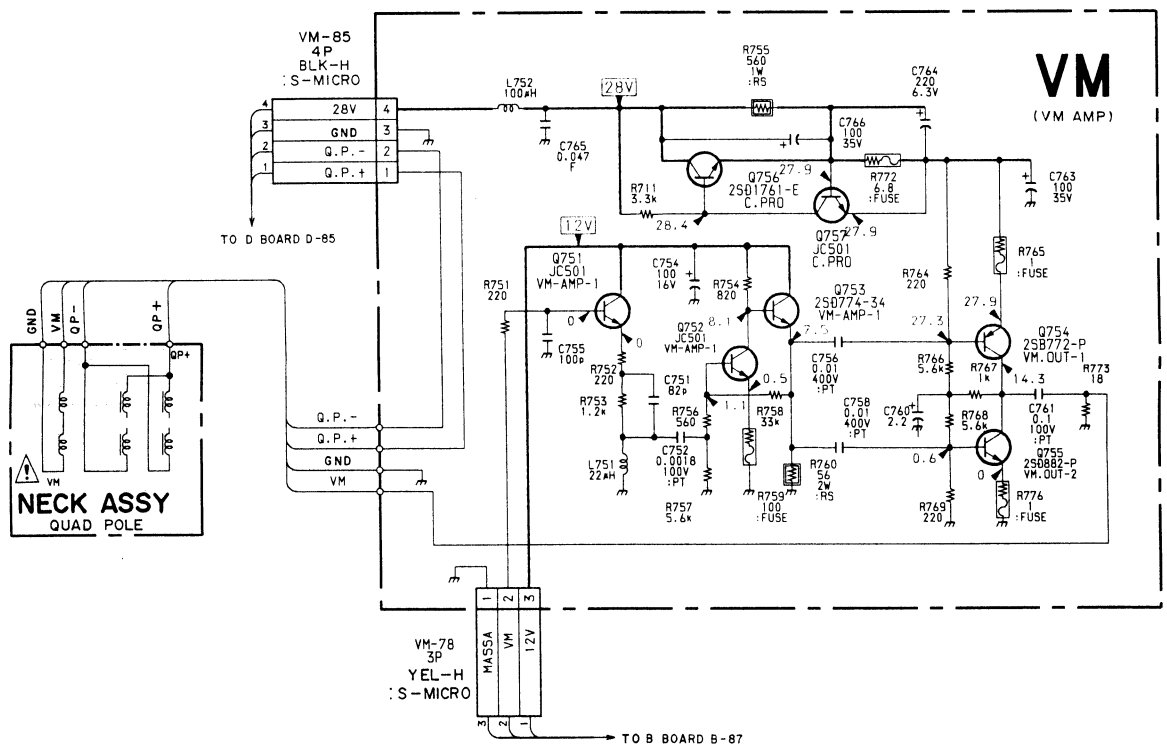
MODE 1
MODE 2
GND
SDA 1
SCL
4 LEVEL
R
G
B
BLK
GND
C OUT
GND
Y OUT
GND
V OUT
GND
V TV IN

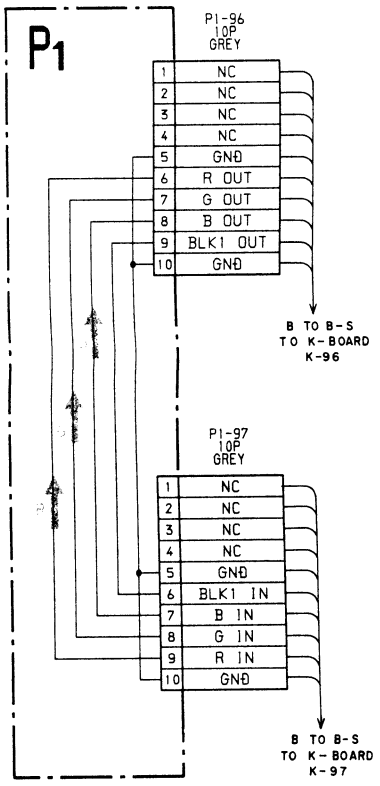
TO K BOARD K-51

WAVEFORMS OF BOARD J

①	②
2.2Vp-p (H)	1.0Vp-p



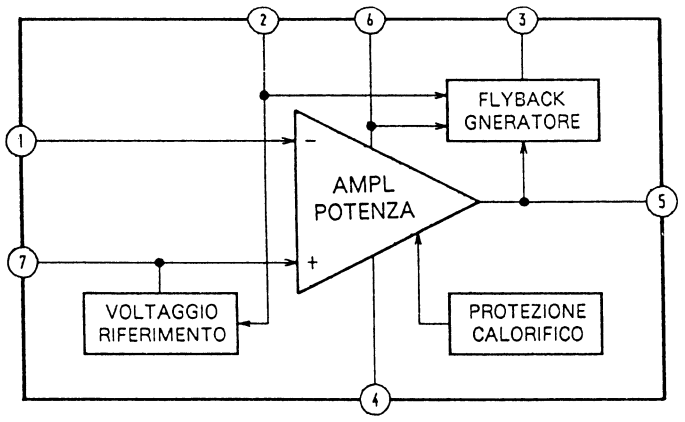




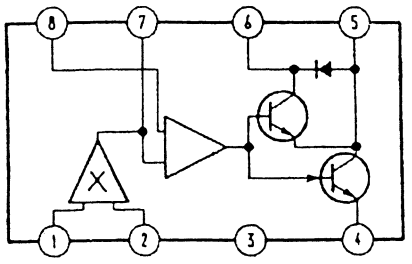
WAVEFORMS OF BOARD J

①	②	③
2.2Vp-p (H)	1.0Vp-p (H)	1.0Vp-p (H)

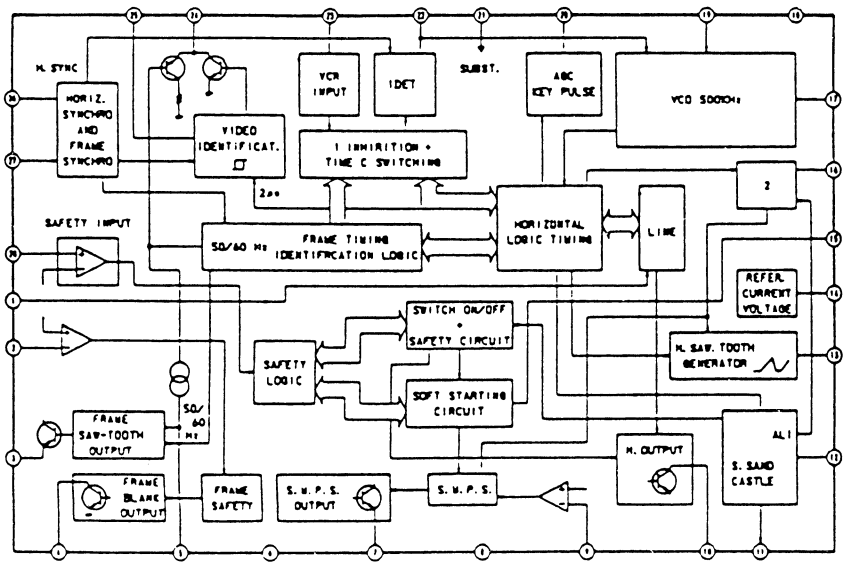
D BOARD IC502 TDA8170

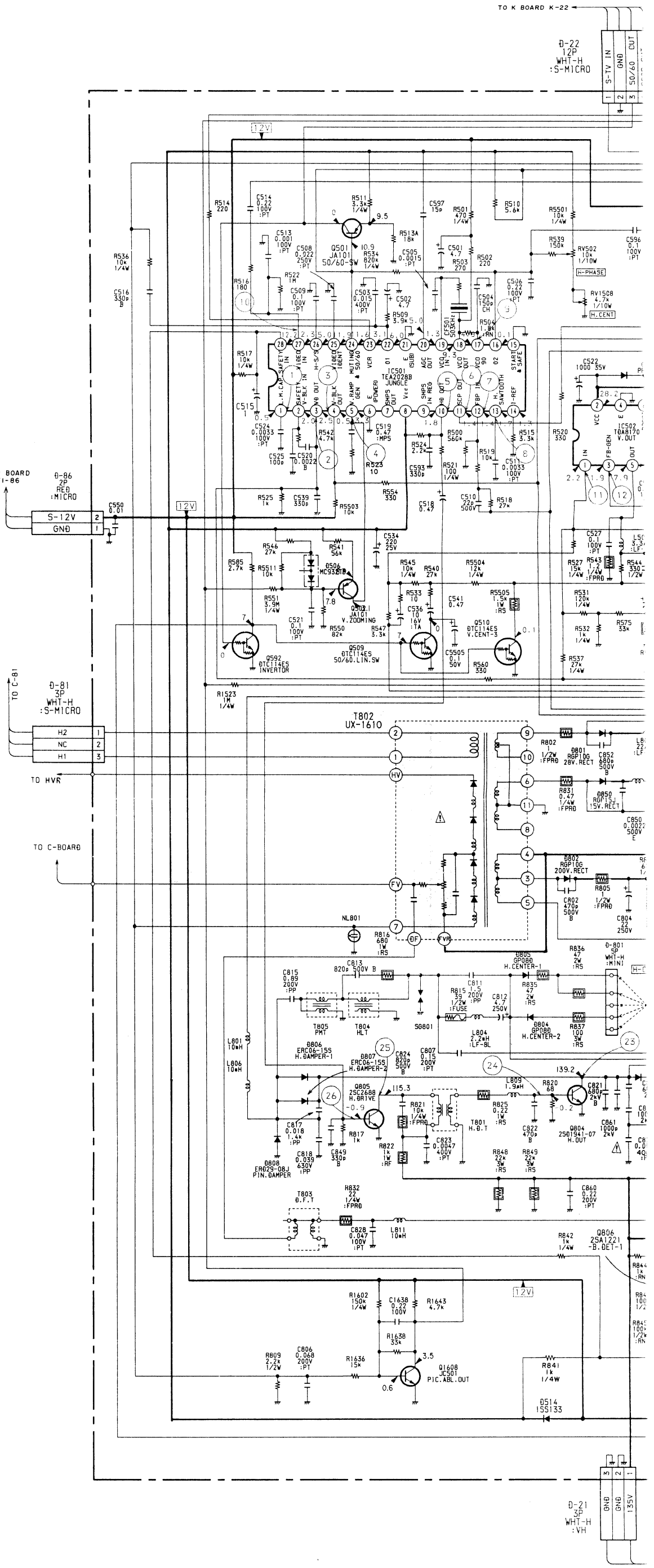


D BOARD IC1501 TEA2031A



D BOARD IC501 TEA2028B





D

(JUNGLE, V OUT, PIN OUT, COMPARATOR, FUNCTION)

TO K BOARD K-22

Đ-22 12P WHT-H :S-MICRO
1 S-TV IN
2 GND
3 50/60 OUT
4 SSCP OUT
5 VCR IN
6 +BLK
7 PIC ABL
8 BRT ABL
9 H PULSE
10 V PULSE
11 GND
12 NO PIC

12V
28V
15V
5V

H-PHASE
H-CENT
V.CENT
H.SIZE
CORNER.COR
PIN AMP
PIN PHASE
P.COR
V.SIZE
V.ANG
H.TILT
Y.CORSS
Y.BOW
C.BOW
H.AMP

Q505 2S0774 V.CENT-1
Q506 2SB734 V.CENT-2
Q501 JC501 VIDEO AMP-2
Q507 JA101 -BLK
Q591 JC501 VIDEO AMP-2
Q1501 RGP10G PROTECT
Q1502 1SS133 CORRECT
Q1503 1SS133 CORRECT
Q1504 1SS133 CORRECT
Q1505 MC932TP PROTECT
Q1508 1SS133 CORRECT
Q1509 1SS133 CORRECT
Q1552 RGP10G PIN.MOD
Q1652 S1B01-02 PROTECT
Q1653 2SC2958 Q.P.DRIVE
Q1654 2SC2958 Q.P.DRIVE
Q1655 1SS133 CORRECT
Q1656 1SS133 CORRECT
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Q1699 1SS133 CORRECT
Q1700 1SS133 CORRECT
Q1701 JC501 FBP.BUFF-1
Q1702 ERA81-004TP1
Q1703 ERA81-004TP1
Q1704 2S0774 INVERTOR
Q1705 2S0774 CURRENT.SOURCE
Q1706 JA101 DC.CLAMP
Q1707 2SC4159 V.PARABOLA. OUT
Q1708 2SB734 CURRENT.AMP
Q1709 JC501 V.PARABOLA.AMP
Q1710 JC501 H.AMP
Q1711 JC501 V.PARA.EQ
Q1712 JC501 V.P-BUFF
Q1716 DTC114ES Y-BOE.SW
Q1717 JA101 VP.AMP
Q1552 2SC3298B PIN.OUT
Q1553 JC501 PIN.DRIVE
Q1703 2SC3298B CONT.SW
Q1704 2S0774 INVERTOR
Q1705 2S0774 CURRENT.SOURCE
Q801 RGP10G 28V.RECT
Q802 RGP10G 200V.RECT
Q804 2SD1941-07 H.OUT
Q805 GP080 H.CENTER-1
Q806 2SA1221 -B.DET-1
Q807 2SC2275A -B.DET-2
Q1501 RGP10G PROTECT
Q1707 PROTECT
Q1710 JC501 H.AMP
Q1711 JC501 V.PARA.EQ
Q1712 JC501 V.P-BUFF
Q1716 DTC114ES Y-BOE.SW
Q1717 JA101 VP.AMP

IC1501 TEA2031A PIN.OUT
IC1502 T0A8170 V.OUT
IC1503 STR90120 12V.REG
IC1504 STR90120 12V.REG
IC1701 μPC393C COMPARATOR
IC1702 μPC4570HA FUNCTION
IC1704 NJM7812FA 12V REG

Đ501 GP080 PROTECT
Đ502 ERB12-01
Đ503 GP080 PROTECT
Đ504 GP080 PROTECT
Đ505 GP080 PROTECT
Đ506 GP080 PROTECT
Đ507 GP080 PROTECT
Đ508 GP080 PROTECT
Đ509 GP080 PROTECT
Đ510 GP080 PROTECT
Đ511 GP080 CORRECT
Đ512 GP080 CORRECT
Đ513 RD4.7ES82 4V.ZENER
Đ514 1SS133
Đ801 SP WHT-H :MINI
Đ802 RGP10G 200V.RECT
Đ803 V11N G2.RECT
Đ804 GP080 H.CENTER-2
Đ805 GP080 H.CENTER-1
Đ806 GP080 PROTECT
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Đ808 GP080 PROTECT
Đ809 1SS133 CORRECT
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Đ1707 RGP10G PROTECT
Đ1708 RD4.7ES82 CURRENT.AMP
Đ1709 R05.6ES82 5V.ZENER
Đ1710 R05.6ES82 DC.CLAMP
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Đ1999 1SS133 CORRECT
Đ2000 1SS133 CORRECT

Đ-21 3P WHT-H :VH
1 135V
2 GND
3 GND
TO K BOARD K-21

Đ-82 3P WHT-H :MINI
1 G2
2 200V
3 GND
TO C BOARD C-82

Đ-83 6P WHT-H :ĐY
1 V+
2 V+
3 V-
4 H-
5 H+
6 H+

Đ-20 4P WHT-H :MINI
1 15V IN
2 GND
3 12V OUT
4 ST.BY
TO K BOARD K-20

Đ-87 2P WHT-H :MINI
1 GND
2 GND
TO CRT

Đ-85 4P BLK-H :S-MICRO
1 Q.P.+
2 Q.P.-
3 GND
4 +28 V
TO VM BOARD VM-85

Đ-84 3P WHT-H :MINI
1 CY+
2 NC
3 CY-

CY
V
DY
H

WAVEFORM

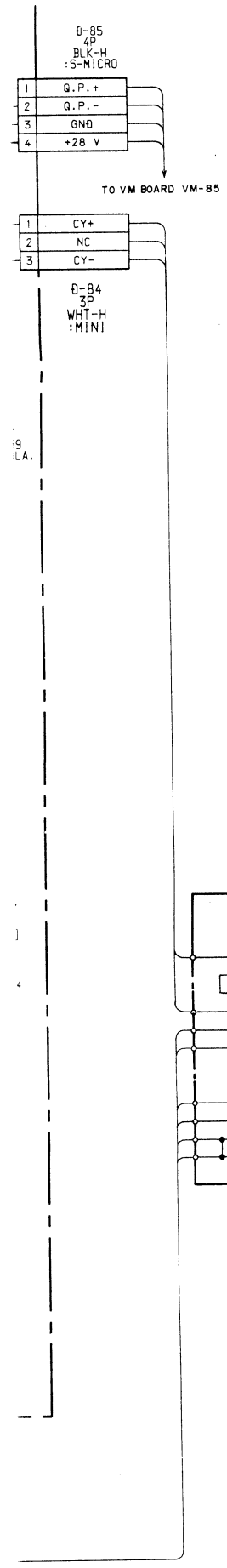
① 1.2Vp
⑥ 9.5Vp
⑪ 0.7Vp
⑯ 27Vp
㉑ 210Vp
㉖ 3.2Vp

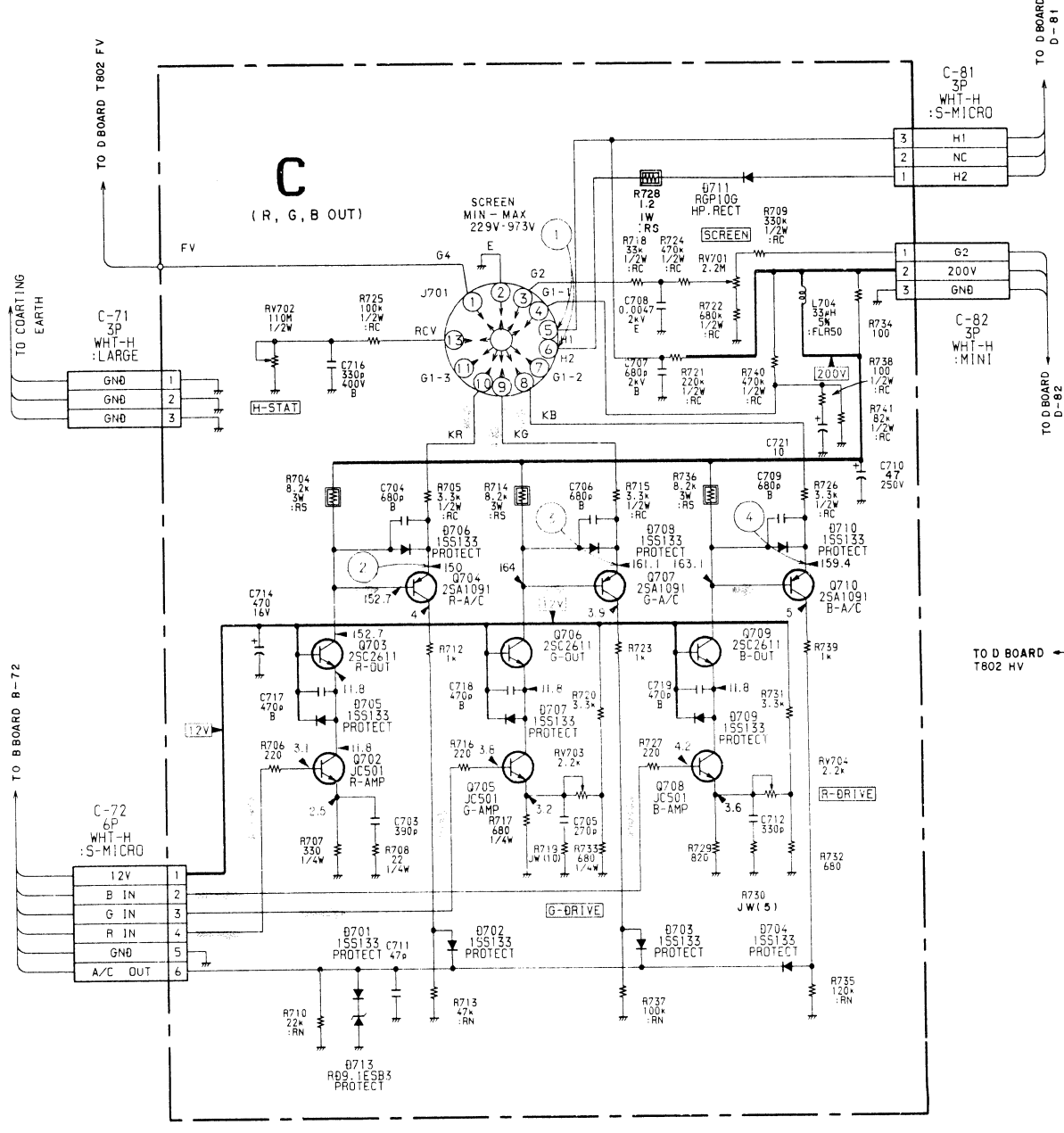
WAVEFORMS OF BOARD D

① 1.2Vp-p (H)	② 2.3Vp-p (V)	③ 6Vp-p (V)	④ 2.3Vp-p (V)	⑤ 3.8Vp-p (H)
⑥ 9.5Vp-p (H)	⑦ 13Vp-p (H)	⑧ 3.4Vp-p (H)	⑨ 3.2Vp-p (503Hz)	⑩ 0.8Vp-p (H)
⑪ 0.7Vp-p (V)	⑫ 28Vp-p (V)	⑬ 47Vp-p (V)	⑭ 1Vp-p (V)	⑮ 0.3Vp-p (V)
⑯ 27Vp-p (H)	⑰ 1.7Vp-p (H)	⑱ 0.7Vp-p (H)	⑲ 6.8Vp-p (V)	⑳ 4.1Vp-p (V)
㉑ 210Vp-p (H)	㉒ 10Vp-p (V)	㉓ 1,000Vp-p (H)	㉔ 14Vp-p (H)	㉕ 280Vp-p (H)
㉖ 3.2Vp-p (H)				

WAVEFORMS OF BOARD C

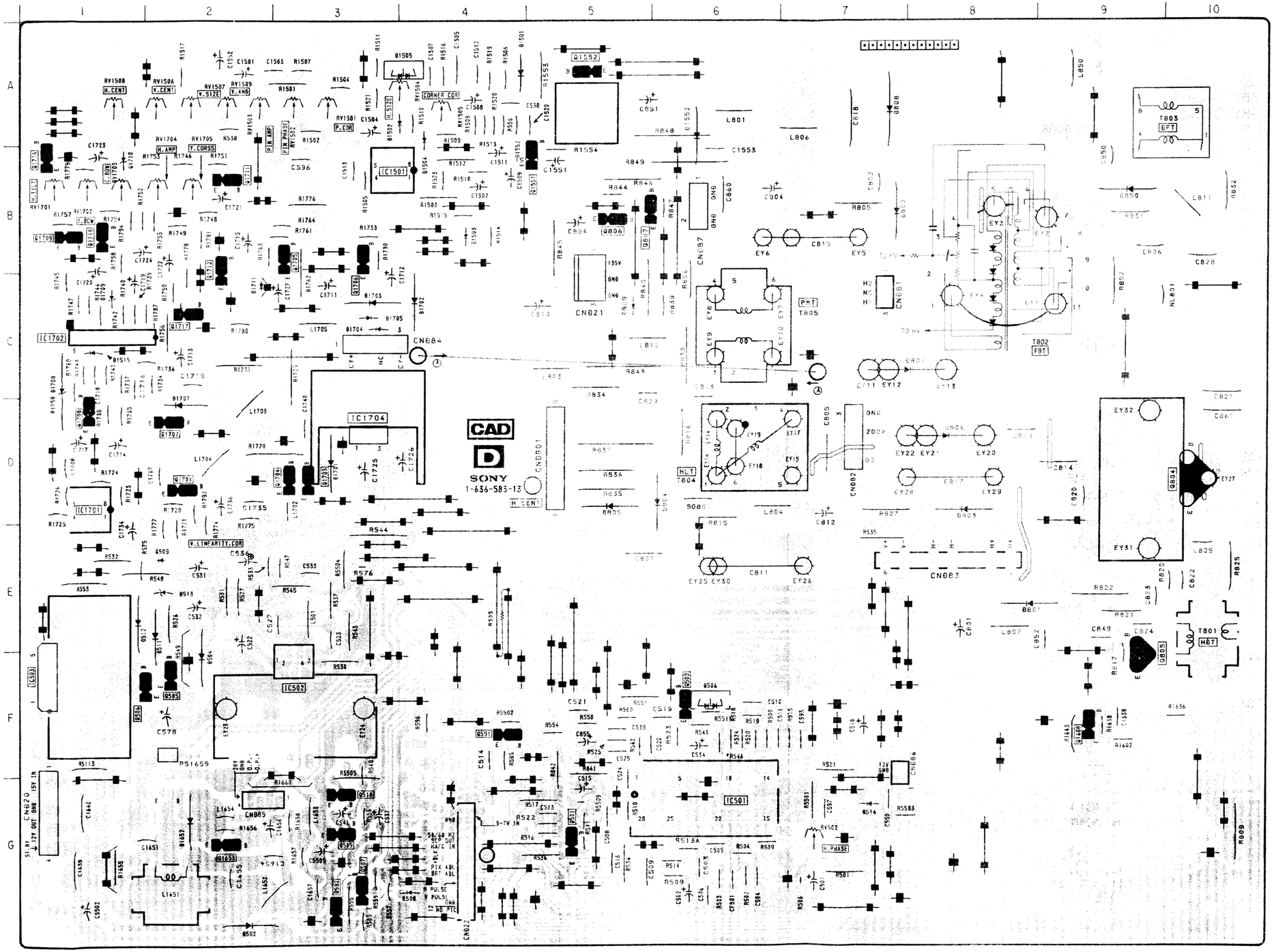
① 22Vp-p (H)	② 150Vp-p (H)
③ 130Vp-p (H)	④ 140Vp-p (H)





D [JUNGLE, V OUT, PIN OUT, COMPARATOR, FUNCTION]

— D Board —



IC	
IC501	G-6
IC502	F-3
IC503	F-1
IC1501	B-3
IC1701	D-1
IC1702	C-1
IC1704	D-3

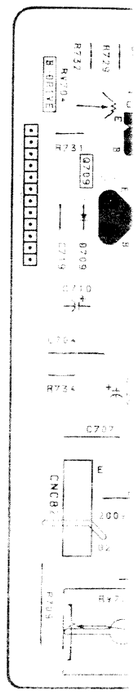
TRANSISTOR	
Q501	G-5
Q502	F-6
Q505	F-2
Q506	F-2
Q507	G-3
Q509	G-3
Q510	G-3
Q591	F-4
Q592	G-3
Q598	F-4
Q804	D-10
Q805	E-9
Q806	B-5
Q807	B-5
Q1551	B-5
Q1552	A-5
Q1608	F-9
Q1653	G-2
Q1701	D-2
Q1703	D-3
Q1704	D-3
Q1705	B-3
Q1706	B-3
Q1707	D-2
Q1708	D-1
Q1709	B-1
Q1710	B-1
Q1711	B-2
Q1712	B-2
Q1716	B-1
Q1717	C-2

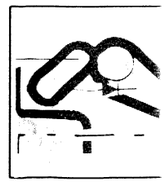
DIODE	
D502	G-2
D504	E-2
D506	F-6
D508	G-4
D511	E-2
D512	E-1
D513	E-2
D801	E-8
D802	B-7
D803	D-8
D804	D-6
D805	D-5
D806	D-8
D807	C-8
D808	A-7
D809	C-5
D850	B-9
D1501	A-4
D1502	A-3
D1503	B-4
D1504	B-4
D1505	A-3
D1515	C-1
D1552	A-6
D1652	G-2
D1701	D-3
D1702	C-4
D1703	C-3
D1704	C-3
D1705	C-3
D1707	D-2
D1708	C-1
D1709	C-1
D1710	B-1

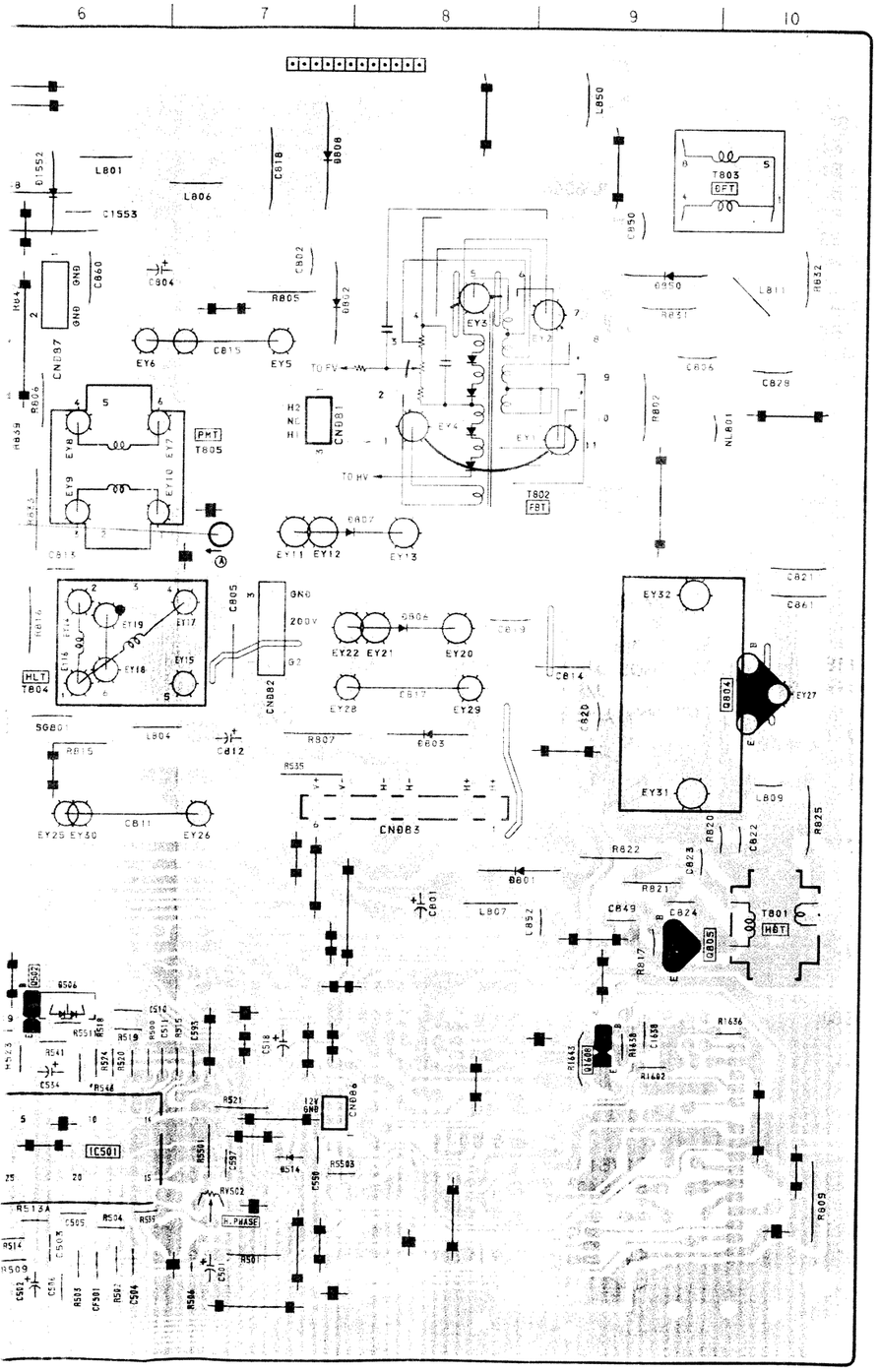
VARIABLE RESISTOR	
RV502	G-7
RV1501	A-3
RV1502	A-3
RV1503	A-2
RV1504	A-4
RV1505	A-4
RV1506	A-2
RV1507	A-2
RV1508	A-1
RV1509	A-2
RV1701	B-1
RV1702	B-1
RV1703	B-1
RV1704	B-2
RB1705	B-2

C [R.G.B. C

— C Board —



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IC501
RV502
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CN882
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CN887
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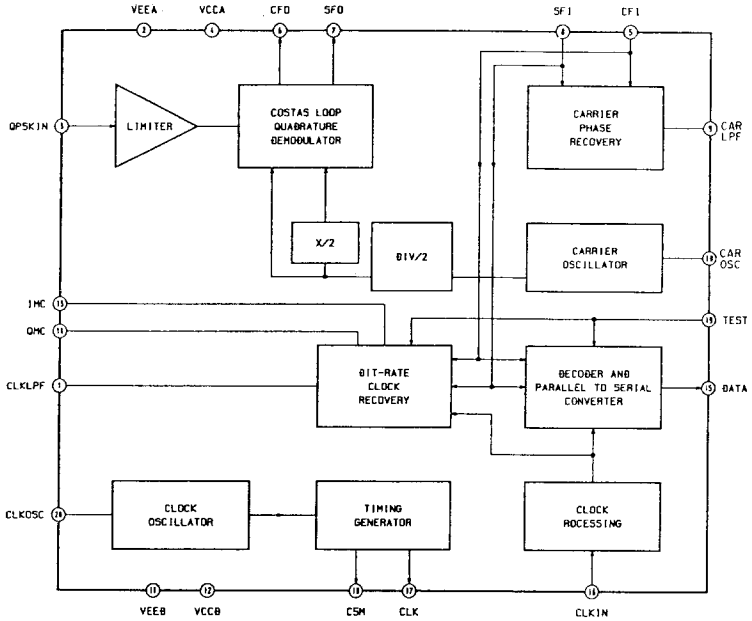
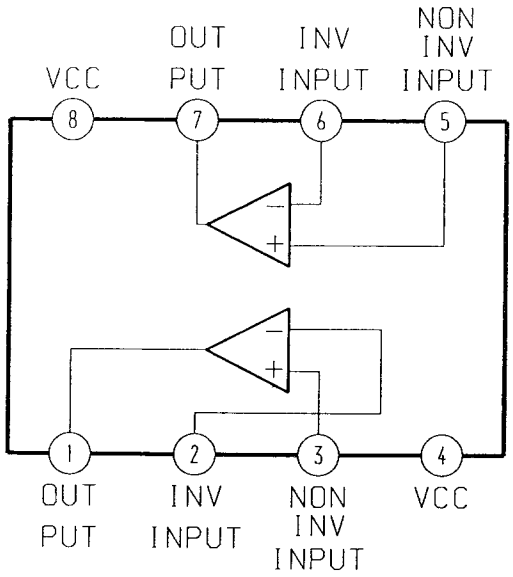
Q843

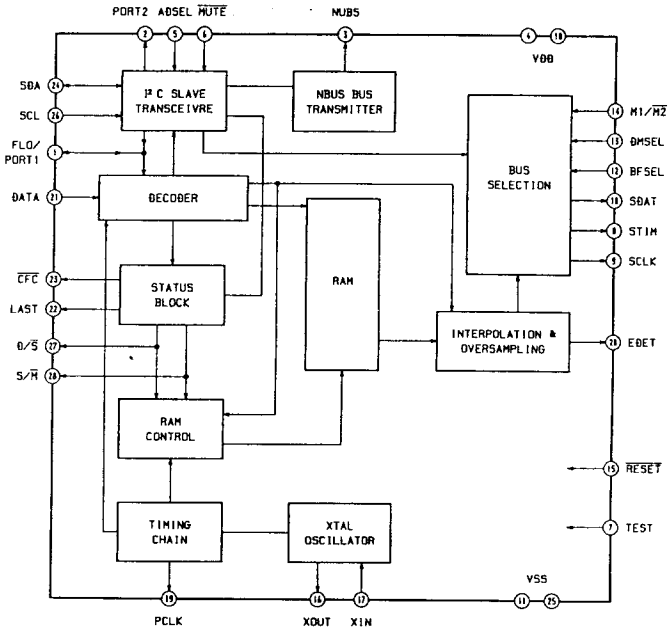
A1 BOARD IC1101 TDA8732



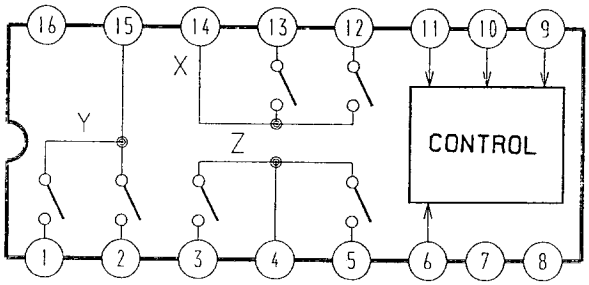
A1 BOARD IC1104, IC1105 NE5532P



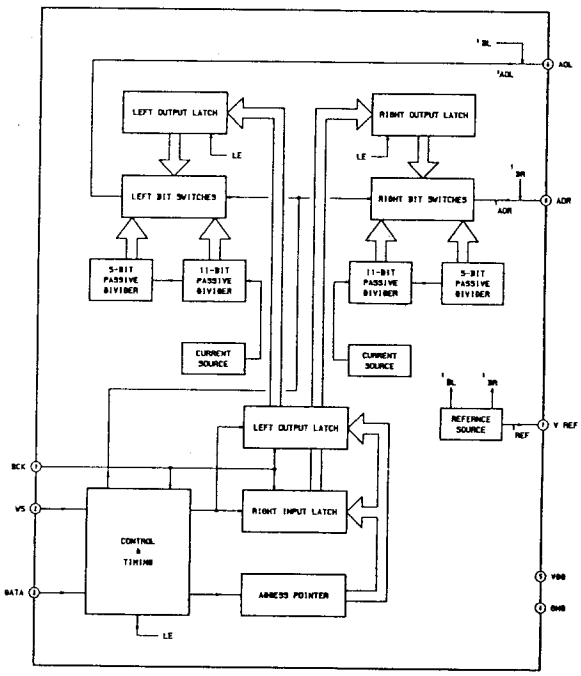
A1 BOARD IC1102 SAA7280



A1 BOARD IC1106 µPD4053BC

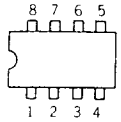


A1 BOARD IC1107 TDA1543



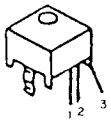
5-7. SEMICONDUCTORS

BA4558
NE5532P
RC4558P
SDA2546
TBA129
TEA2014A
TEA2031A
µPC393C

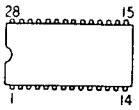


(Top view)

BX-1387
SBX1483-11
SBX1610-11

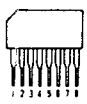


CXA1114P
FC861C65L-70P
MAB8461P-W208
SAA5246P/E
SAA7280
TDA4580-V6
TDA4580-V7
TDA4650-V3
TDA4650-V4
TDA6200
TEA2028B



(Top view)

CX20061



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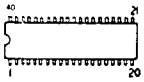

(Top view)

HCF4052BEY
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MC14052BCP
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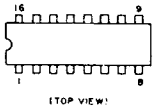

(TOP VIEW)

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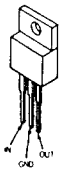
UPC7812H



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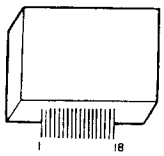

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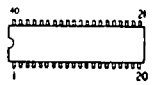

(Top view)

STR90120

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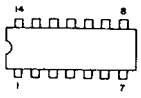
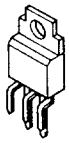


(TOP VIEW)

TDA2050



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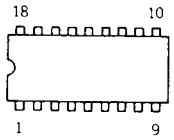

(Top view)

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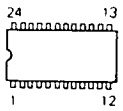

(Top view)

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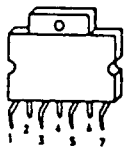

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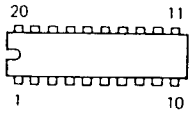

(Top view)

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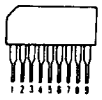

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2SA1091-O

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DTC124EK
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2SB1295-UL6
2SC1623
2SC2412K
2SC2712
2SC2712G

DTA144ES
DTC114ES
DTC124ES
DTC144ES

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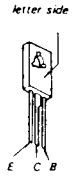

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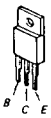

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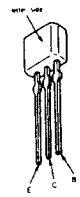

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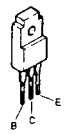

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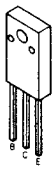

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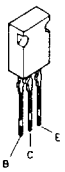

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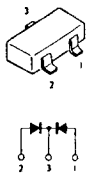

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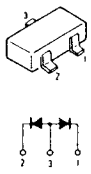
10E-2



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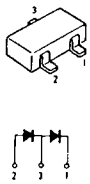

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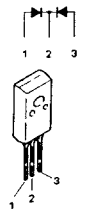

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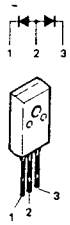

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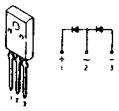

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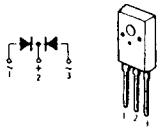

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RD12ES-B2
RD20ES-B3
RD33ES-B1
RD3.0ES-B1
RD3.9ES-B1
RD4.7ES-B2
RD5.6ES-B2
RD5.6ES-B3
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RD6.8ES-B3
RD7.5ES-B3
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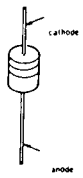

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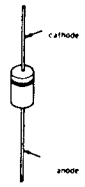

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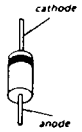

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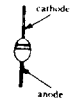

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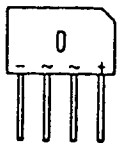
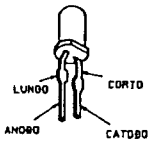


LD-201VR



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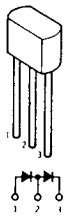
MA3056
MA3068
RD3.6MB2
RD5.6MB2
RD6.8MB2

MC932



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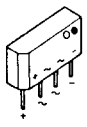
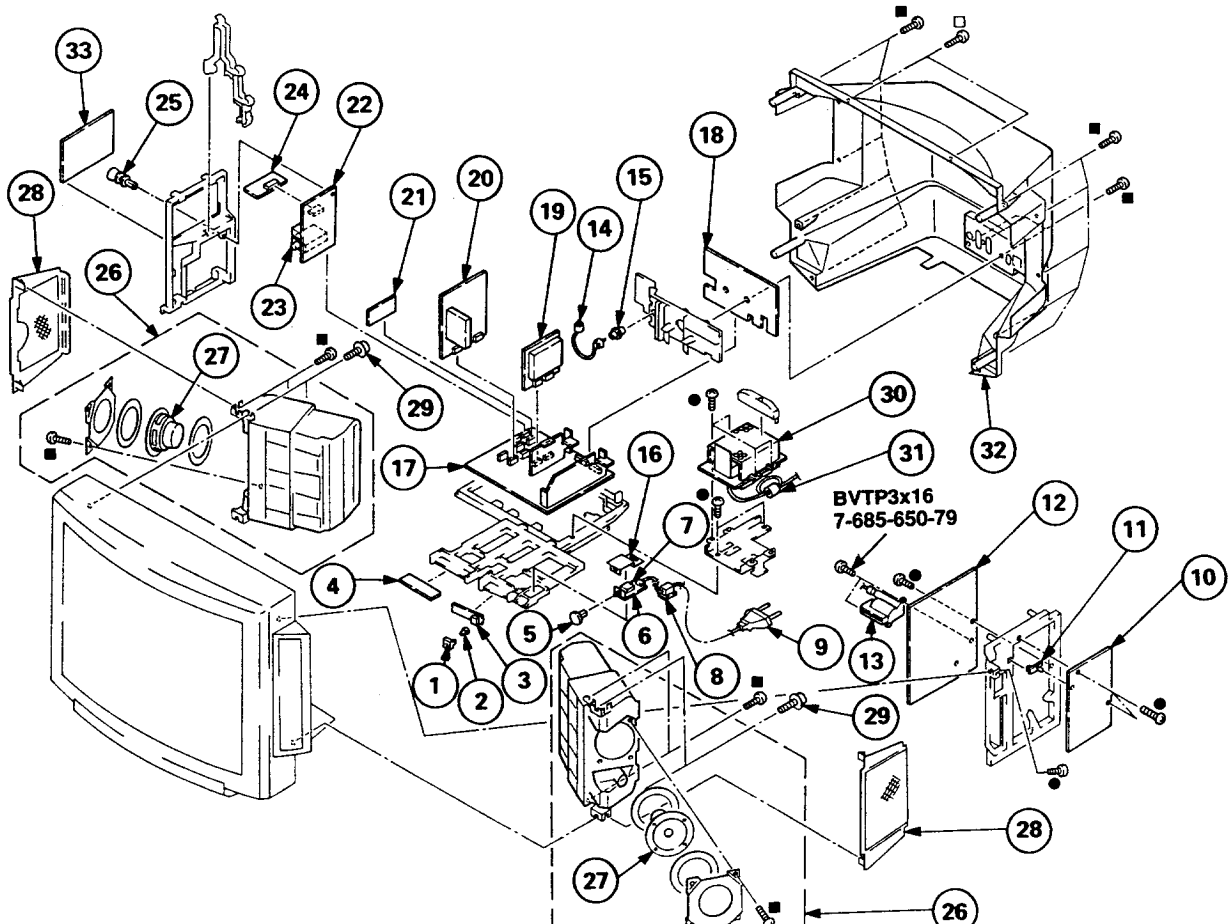
S1VB40



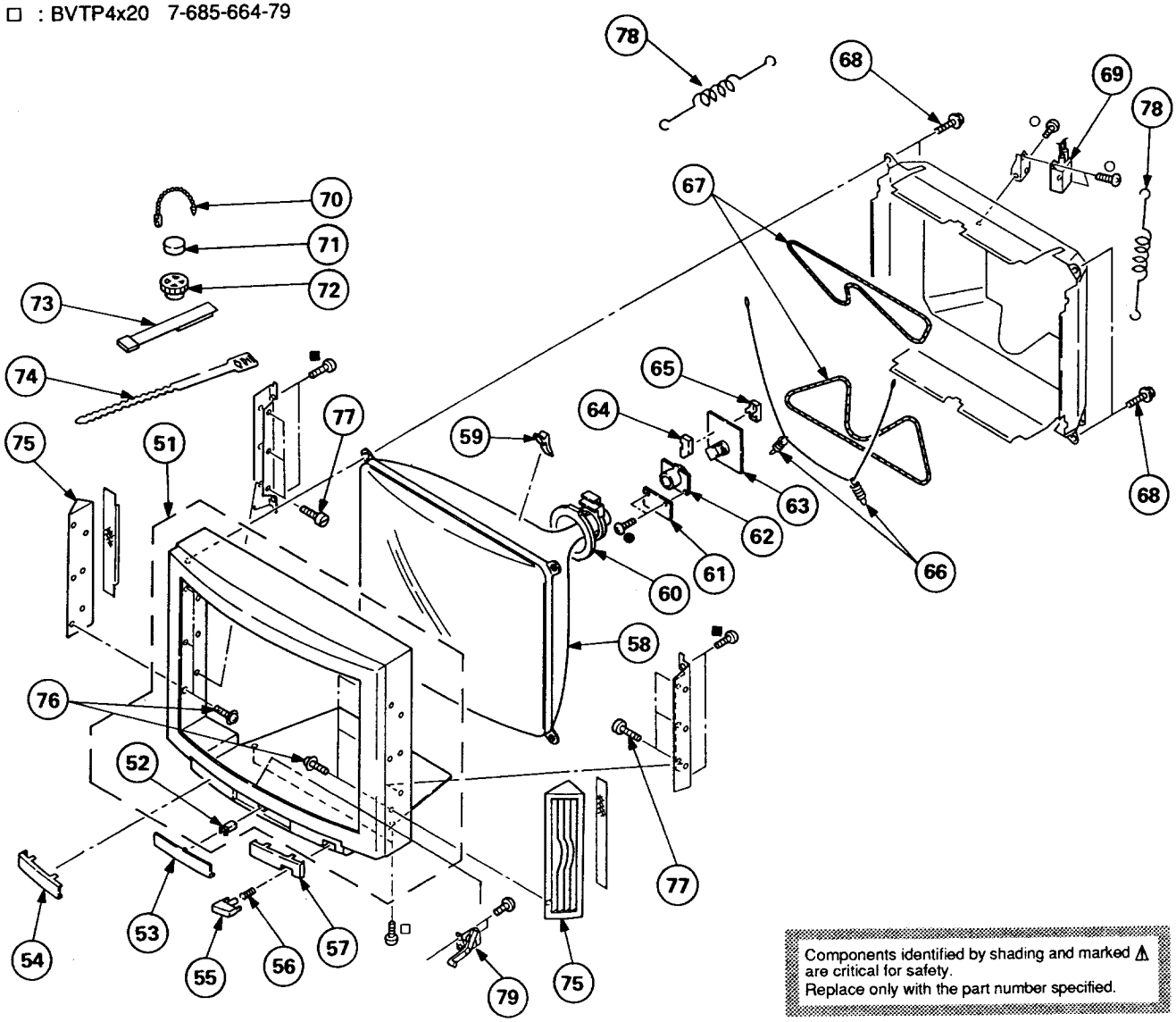
6-1. CHASSIS

● : BVTP3x12 7-685-648-79
■ : BVTP4x16 7-685-663-79
□ : BVTP4x20 7-685-664-79



6-2. PICTURE TUBE

● : BVTP3x12 7-685-648-79
■ : BVTP4x16 7-685-663-79
○ : BVTP4x12 7-685-661-14
□ : BVTP4x20 7-685-664-79



Components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.